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30 August — 5 September 1984

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Vol 3 No 35

Top titles pirated

PORTUGUESE company Microbaite Software is copying Spectrum software in large quantities.

Based in Oporto, the company is offering around 54 cassettes for sale in Portugal. Each contains two different top selling Spectrum titles from a wide variety of software houses The cassette artwork is faithfully reproduced in full colour and the inlays contain extensive instructions printed in Portuguese.

Not one of these games has been authorised by their original publishers.

At least eight of the 100 plus titles in Microbaite's catalogue come from Quicksilva. Managing director, Rod Cousens, said. "Portugal seems to be one of the main offenders for this type of organised piracy It's not the kids copying stuff that worry us so much, as this kind

continued on page 9 ▸

Virgin pushes for quality

VIRGIN Games plans for the autumn reveal a change of strategy

The company will launch just six new titles and that autumn many of its existing games are to be deleted from Virgin's catalogue. Deleted titles include *Owzat* for the BBC, *Sheepwalk* and *Ghost Town* for the Spectrum, and all its Dragon titles

"The best of our current software will be reduced to £2.99 until the end of November These are games like *Falcon Patrol* and *Racing Manager* The deleted titles are our not-so-good products," said managing director Nick Alexander

"We're cutting the price because we've found that catalo-

continued on page 8 ▸

Camputers takeover

CAMPUTERS, manufacturer of the Lynx micros, which has been in receivership since June, is hoping to exchange contracts with a buyer

Receivers Hacker Young says that final negotiations are now taking place

Spicer, the paper manufacturer, is reported to be the buyer

```
You are on Baker
Street. To the
north there is the
front door. You
can see a hansom
cab. In the hansom
cab there is the
cabbie.
> LOOK.
> PAY CABBIE 1/6.
> SAY  TAKE ME TO ALDERGATE.
> LOOK.
```

Melbourne House reveals Holmes' latest case

THE long awaited *Sherlock Holmes* adventure from Melbourne House is now completed and should be available from mid-September

Like *The Hobbit*, *Sherlock Holmes* was written by Philip Mitchell in 'Inglish', with complex sentence constructions being understood and with characters leading 'inde-

continued on page 5 ▸



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FAME QUEST

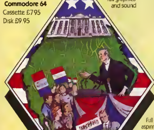
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POPULAR Computing WEEKLY Vol 3 No 35



) View

That a Portuguese company, Microbaite, should be selling unlicenced copies of UK Spectrum titles is not, at first sight, particularly noteworthy in these days of rampant piracy

But two aspects of the company's activities will be giving cause for concern.

First, it is commercial piracy on a grand scale Over a hundred top British Spectrum titles are involved including all the big names — *Chequered Flag, The Hobbit, Jet Pac, Manic Miner* and *Scrabble* are all on its list

Second, this is no underground operation working out of some shady back-street accommodation address. Microbaite is apparently trading quite openly The games are advertised, they are available in the high-street shops with four-colour window display stickers — the works.

Yet there is very little that the British software houses can do to stop it.

International copyright law is a funny thing Even though Portugal is a signatory of the Berne Convention and the Universal Copyright Convention, halting Microbaite would be a lengthy and above all costly process. Bringing legal actions in foreign countries and then enforcing them is very difficult and time consuming

So what can the UK houses do Do they write off Portugal as a lost cause? Do they now add Portugal to an increasing list of such countries where there is no hope of controlling blatant software piracy?

Unfortunately, the answer is almost certainly yes on both counts

British software is the best in the world, and it is being openly ripped-off.

What Microbaite is doing is a crime. An even bigger crime is that Microbaite seems likely to get away with it.

) Presents...

) Futures...

Race to the finish with *Turbo Track*, Star Game for the C64 . . . Street Life talks to commercial computer graphics house Communications Studios . . . a sophisticated graphic designer program for the BBC . . . and UDGs on QL.

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ABC
?? 052 copies sold every week (Jan-June 1984 ABC)

How to submit articles Articles which are submitted for publication should not be more than 2000 words long. The articles and any accompanying programs should be original It is breaking the law of copyright to copy programs out of other magazines and submit them here — so please do not be tempted **Accuracy** *Popular Computing Weekly* cannot accept any responsibility for any errors in programs we publish although we will always try our best to make sure programs work.

Computer Trade Association Magazine of the Year

Piracy

◄ continued from page 1

of professional outfit."

Melbourne House, with *The Hobbit* and the *Horace* series, Psion and Beau Jolly — several ex-Imagine titles are on the list — have also been Microbyte's major targets.

Peter Norman, Psion's product director, said, "We will pursue this extremely vigorously. We always go to great lengths to stamp out professional piracy."

Programs in Microbyte's catalogue include: *Chuckie Egg* from A&F; *Football Manager* (Addictive Games); *Invasion Force, Voice Chess* (Artic); *Panama* (Automata); *Zip Zap, Arcadia, Zzoom* (Beau Jolly); *Manic Miner* (Bug Byte); *Dallas* (CCS); *Pool* (CDS); *Gulpman* (Campbell Systems); *Black Crystal* (Carnell); *Halls of the Things* (Crystal); *Jungle Trouble, Harrier Attack* (Durell); *Dictator, Embassy Assault* (DK'Tronics); *Violent Universe, The Pyramid, Black Hole* (Fantasy); *Heathrow Air Traffic Control, 3D Space Wars* (Hewson); *Bugaboo* (Indescomp); *Mad Martha* (Mikro-gen); *Hungry Horace, Horace Goes Skiing, Horace and the Spiders, Pterodactyls, Penetrator, The Hobbit* (Melbourne House); *3D Tunnel* (New Generation); *Kong* (Ocean); *Invaders, Planetoids, Chequered Flag, Scrabble* (Psion); *Smugglers Cove, Aquaplane, The Chess Player, Xadon, Trader Galaxians, Games Designer* (Quicksilva); *Navigator, Everest Ascent* (Richard Shepherd); *Star Trek, Slippery Sid, Cyber Rats* (Silversoft); *Joust* (Soltek); *Crusoe, Blind Alley* (Sunshine); *Transam, Cookie, Jet Pac* (Ultimate).

Cheetah releases Rat

THE first cordless joystick has been launched by Cheetah Marketing. Available first for the Spectrum, versions for other machines are also planned.

The Remote Action Transmitter (RAT) works on much the same principle as a remote control TV unit. It has a touch sensitive control pad and fire button. When pressed, these send out the relevant infra red signals to a receiver which plugs directly into the edge connector at the back of the Spectrum.

The RAT can be used effectively up to thirty feet away from the screen, and the signals are sent out at a wide angle — about 36 degrees — so the player need not point the 'joystick' directly at the receiver.

The RAT is compatible with many top software titles including *Psytron, Trashman, Atic Atac, Sabre Wulf* and *Hunchback*.

The RAT should be available within the next week or so, and costs £29.95. The PP3 battery needed for the unit is not included in the pack.

Rabbit creditors take action

RABBIT creditors are taking legal action to stop Stuart Edgar from continuing to act as liquidator of the company.

Stuart Edgar was appointed as liquidator by Rabbit shareholders after the company's creditors put forward no alternative at the creditors meeting on August 10th.

Now they have filed a petition to the courts objecting to Edgar's appointment.

However, because the courts are now in recess, the petition will not be heard until October.

Aquarius price falls

THE price of the Aquarius 1 micro has been cut by manufacturer Radofin Electronics to £49.95.

The drop means that the Aquarius 1 is now effectively competing with the ZX81 in the starter computer market. However, unlike the ZX81, the Aquarius offers 16 colours and 40 × 24 character graphics resolution. Software is available on both cassette and cartridge.

Radofin's sales director Mike Quelch

Radofin has also recently appointed Mike Quelch as sales director. Mike was formerly software sales manager at Dragon Data.

Sherlock

continued from page 1

pendent' lives.

As with *The Hobbit*, a knowledge of the literature is useful although not essential to the playing of the game.

The faithful Dr Watson is, of course, an integral part of the adventure and Inspector Lestrade of Scotland Yard also appears.

The player takes on the persona of Holmes and the game begins at his rooms at 221b, Baker Street. Successful completion of the adventure depends on solving a particularly difficult case that has Lestrade of the Yard completely baffled.

The adventure takes place in 'real time', and the locations are scattered over Victorian England. The number of locations and the complexity of the sentence interpretation routines have meant that the graphics in the game have had to be kept simple.

Sherlock Holmes for the Spectrum will cost £14.95. A Commodore 64 version is due for release in October.

Virgin

◄ continued from page 1

gue sales have now all but stopped — this is a way of repromoting the titles."

The six titles Virgin will release this autumn reflect the company's new policy of selective publishing.

"We are now going for quality rather than quantity," Nick continued. "But we are still going to market the titles extremely hard, and will spend £0.25m in advertising the games in the run-up to Christmas."

The new titles are *Falcon Patrol II, Terrorist* — written by Andromeda Software — and *Sorcery*, all for the Commodore 64, *Strangeloop* and *The Biz* for the Spectrum and *Sinbad* for the BBC B. *Sorcery* is adapted from the Spectrum version of the game. *Sinbad* has the Arabian Nights as its theme and *The Biz* is a simulation game based on the life of a rock star.

Strangeloop for Spectrum

Virgin will continue this selective policy into 1985. "In the long term, Virgin will be releasing fewer games than in the past, at the most, it'll be two per month," confirmed Nick Alexander.

Domark's marathon quest

A PRIZE of £25,000 is being offered to the first person who can complete *Eureka*, an adventure-arcade program from a new company, Domark.

The game has been programmed by the Hungarian team from Andromeda, and consists of five separate adventures linked by five arcade games. The arcade screens must be successfully completed for the player to move from one adventure to the next.

Domark was formed last March by two ex-advertising account managers, Mark Strachan and Dominic Wheatley. The latter is the grandson of author Dennis Wheatley. The pair originated the ideas for *Eureka*, and commissioned the Games Workshop founder and author of Puffin's *Fighting Fantasy* series, Ian Livingstone, to plan the structure of the adventure.

While Domark expects the prize to be claimed eventually, the company believes it will take six to nine months for anyone to finish it.

Eureka will be launched at the *Personal Computer World* Show. Available by mail-order only from November, it will cost £14.95.

Spectrum and Commodore versions only are planned at the moment.

Letters

Just too expensive

I am writing on the subject of your editorial in the August 16 issue

If the home computer market is suffering from disenchantment it has nothing to do with any lack of intelligent software.

There is only one reason for the depression and that is the price of computer software. For a person such as myself, like a great many of my friends, good quality arcade or adventure games are just too expensive for our allowance of pocket money This means that when one of us buys a game it is copied and passed around, a process which I am sure is taking place all over the country The result is that the software houses lose out.

Can you really imagine the many thousands of "trigger-happy" arcade freaks buying documentaries or biographies for their micro? The idea is totally ludicrous.

Scott Murdoch
9 Kinnaird Drive
Linwood
Renfrewshire
Scotland PA3 3RL

Microdrive utility

I read with great interest the microdrive utilities published this week on your 'QL' page. I too have developed a similar program and would like to make a couple of observations which may save potential users many hours of fruitless bug-hunting

1) It is impossible to call *Merge* (or *DLine* for that matter) from procedures on machines with the latest issue Roms — mine is 'AH' Attempting to do so results in the 'Not Implemented' message The only ways around this are either to exit from the program via a *Stop* after the *Proc/Fn* cleared message has appeared or by the intelligent use of simple Basic.

2) The routines as listed start at line number 30000 This is inadvisable as it renders the *Auto* command useless whilst developing start at line '1' cures this problem.

Finally, try including the following routine which completely wipes the screen — very useful when experimenting with different window sizes

```
150 DEF PROCedure wipe
160 OPEN#15,SCR_
512 256,0,0:PAPER#15,1:INK
#15,1:CLS#15:CLOSE#15
170 END DEFine
```

To call that routine from SuperBasic simply enter *Reset*.

John Lewior
35 Stonefield Drive
Inverurie
Aberdeenshire
Scotland

Existing text

Could I ask for help from one of your computer wizards out there?

After patiently typing in the recently published *Word Processor* program by Simon Wallace for the Commodore 64, I could not get it to input new text — although it appeared to allow for amendments to existing text

Did anyone else have the same problem or can anyone explain what I am doing wrong?

P B Nash
7 Tewkesbury Close
Cheadle Hulme
Cheshire SK8 7QQ

A fab review

In the *Ziggurat* column in your issue dated June 21, Boris Allan considered the subject of magazine reviews of computer books, and with a style of review that he referred to as the 'Fab review'

The article said that Boris took 'a random sample' of such reviews and presents quotations from the sample. I'm rather perplexed that all four quotations are from the same issue of *Personal Computer News*, and furthermore, that they're drawn from reviews of only two books written by my good self.

I'd be the last person to suggest that Boris was suggesting that my reviews are superficial and inadequate, and I just can't believe his article had anything to do with my not totally favourable review of his QL book in *PCN* issue 60. I wouldn't even like to think he has a warped sense of humour, but perhaps you could draw to his attention the fact that his random number generator appears to be broken.

John Lettice (Features Editor)
Personal Computer News
62 Oxford Street
London W1A 2HG

"Stand by to board! She's carrying British software!"

Health and fitness

I would like to know the purpose of advertising a book on Break Dancing in your classified ads section. Is this an attempt to bring health and fitness to all us pale-faced, overweight computer junkies?

David Hawkins
107 Butts Hill Road
Woodley
Reading
Berks

Search me

Extra income

I have an excellent idea to solve the problem of saving your favourite games on to ZX Microdrive

The problem arises when software companies use machine code to load parts of programs to stop software pirates from making a profit Tape copiers cannot change the machine code and therefore cannot copy the more complicated programs.

The solution is simple customers with the tape version of the program simply send off the cassette inlay, as proof of purchase, along with their Microdrive cartridge to the software company which would, for a small fee, copy the program on to microdrive and, to prevent further copies being made, mark the cassette inlay

This would be a very good idea as the buyer profits, by having a fast loading game, and the software company also has a source of extra income

R J Cockshott
48 Mercury Close
Lordshill
Southampton

Did he understand?

I would like to reply to comments made by W A George in the August 16 issue

He says he wishes I had been "more lucid". Does this mean he did not understand the article (QL Page, August 2)? Or is it that he was upset because the features and concepts would not cram into his ZX81?

I quite clearly stated that many Basic dialects could not support such concepts because they did not have local variables and procedures and functions which could be called recursively

Alan Turnbull
Stockport
Cheshire

Increased piracy

In reply to Chris Sawford, I feel that I must make the following points. Firstly, making their routines available to the general public is exactly what most programmers want to avoid, as they may have put a lot of time and effort into them. Making them generally available might eventually put them out of a job, with others being able to write similar programs.

Secondly, making the program easy to copy also increases piracy and therefore reduces sales, another thing the programmer wants to avoid. Thinking that there is nothing wrong with copying software if you don't sell it is absurd, and people must realise that this is crippling the industry as much as organised piracy

Stephen Godwin
37 Dollis Hill Avenue
London NW2 6EU

Astrocrash

Destroy all the meteors with your laser but avoid the red ones in Kevin Ridley's game for 16K Spectrum

Astrocrash is an *Asteroids*-type game written in Basic for the 16K Spectrum. The subroutine starting at line 800 in the listing explains how the game is played. Basically, the player has to destroy 50 meteors with his spaceship's laser to win. If his ship crashes into a meteor five times or his power runs out, he loses. The meteors are not destroyed by crashing into the ship, so one meteor can have several crashes. Since some meteors (the red ones) home-in on the ship, it is therefore necessary to race away from them to gain room to manoeuvre. Manoeuvring consists of rotating either clockwise or anticlockwise or moving forward.

Notes

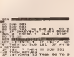
The game is controlled by means of the subroutine calls at the beginning of the program.

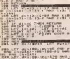
The rocket rotation is achieved by having four user-defined graphics characters (A-D), each showing the rocket pointing in a different direction. The variable (ch) representing the ASCII code of the character is increased or decreased by 1 depending on the key pressed and the new character is then printed.

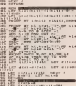
The number of meteors on the screen (m) increases as the score increases but is never more than three. The line numbers, column numbers, and ink colours of the meteors are held in three arrays – l( ), c( ), i(). To move the meteors, the line and column numbers are increased by values held in the array d( ) (d(1) to d(3) is for lines, d(4) to d(6) for columns). To enable the red meteors to home-in, the signs of the relevant values in d( ) are always kept such that these meteors move towards the rocket.

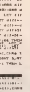
The laser effect is achieved by plotting a point (px,py) at the centre of the rocket and drawing a line from that point, using the draw coordinates dx,dy, which are calculated according to the rocket's orientation. This line is shortened if a meteor is hit or if the rocket is near the edge of the screen.

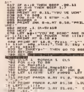


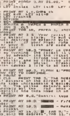












Mud in your eye

Christina Erskina talks to Richard Bartle, creator of MUD, at Essex University

Richard Bartle must be extremely thankful that his A Level grades weren't quite up to scratch. A grade higher, and he would have gone to his first choice of university, Exeter. If he had gone to Exeter, MUD might never have come into being.

As it happened, that one grade short took him to the University of Essex. The rest is probably D & D history.

About 2-3000 people have sampled Richard's creation, the Multi-user Dungeon in Essex's mainframe computer, in the four years that it has been running. Only 44 have managed to reach the ultimate status of Wizard or Witch.



So far, only members of the university's Computing Society and a few external users with PSS (Packet Switching Service) systems have been able to access the DEC-10 computer where this vast Dungeon and Dragon adventure is stored. Now Century Communications plans to publish MUD commercially so that it is available to the public sometime next year.

"The idea for MUD's creation began when I met Roy Trubshaw, a fellow student at Essex. He had had a long-term interest in adventures, and wanted to set up a multi-user game. I had been playing D & D games since I was at school, mostly by mail, so I was obviously enthusiastic about the idea.

"Roy wrote and designed the core of the game — it took up most of his third year and ruined his degree. After he'd graduated — just — I took over the game's development."

MUD started as a scenario of about 100 locations — a diversion for the Computing Society. The word spread, however, and demand from external users — mainly American students to start with — made Richard expand to 300. Today's version has about 400 locations.

The game's development took up all of Richard's spare time in his third year — evenings and weekends.

"Having completed my degree course, I wasn't too keen on the look of the outside world, so I took the opportunity of doing a PhD in Artificial Intelligence like a shot. Now I'll be able to stay with MUD indefinitely, because I've been offered a lectureship at Essex."

At one point there were too many external players for the Computing Society's time to cope with. "I went to the university authorities, expecting them to disapprove strongly of giving more time to a 'mere game'. But they were surprisingly understanding, and arranged that we could play at night, when no-one else would be disturbed.

"When MUD 'goes public', it won't be on the university computer — the night hours will be too inconvenient. Either there will be one big computer with the whole lot on it, or lots of smaller ones linked to a larger one. But it should be capable of accepting input from any modem, even the very slow baud ones. And obviously people will be charged, per hour, for playing the game."

The essential aim of MUD is to collect treasure and drop it in the swamp in order to collect points and enhance your status. The treasure may not always be obvious — you may well find some 'dirty old groats' lying around. Giving them to a beggar may earn you goodwill, but washing them and discovering that when clean they're actually quite valuable is a lot more useful.

Not only are the traditional assortment of villains out to get you — dryads, dwarfs, zombies — but the interaction between players can be amicable or decidedly vicious. Nor are people as they seem — a senior lecturer in the computing department stole my axe three times while masquerading under the title of Bom the Beserker Enchanter!

You can talk to other players — either to help or mislead — and you can 'snoop' on them to find out where they are and what they're carrying.

Richard's title — as befits the game's Lord High Priest — is Arch Wizard. His role frequently involves acting as mediator when squabbles between players break out.

"I have to make sure that everything is sorted out amicably, as well. If I offend someone, they could wreak havoc in the game before leaving it. Also, I get a huge number of letters from people interested in learning how to play, wanting hints and so on."

Once you have become a wizard, or witch if you adopted a female persona at the start, you remain one, and can't be toppled from your position. But even without specific goals to aim for, the 44 wizards and witches still play. And you can always adopt a new identity and start the quest all over again — the interaction with different characters means that no game is ever going to be the same.

"People certainly get very wrapped up in it-myself, for one. I've known students stay behind in the holidays to have a go when they aren't going to be thwarted by other players. When we start the commercial version, it'll probably start with about 100 lines open — at the moment, the maximum number at any one time is 36, and only six of those can be external players."

Most novice players end up getting immediately lost in the graveyard, where the tombstones are inscribed with various names. Richard has commemorated all the wizards and witches on the stones — and some others as well. Roy Trubshaw has his own headstone, Brian Roberts, who wrote a chunk of the original game, is remembered, as is Nigel Roberts who extensively tested the game before it was launched to an unsuspecting computing society.

My personal favourite is the tomb dedicated to Murrell's Balloon Emporium.

"A friend of mine and Roy's tried to set up his own multi-user game, called PIG, because he said it was a PIG to write. But he never had time to finish it, and when he gave it up, his major location was Murrell's Balloon Emporium." Well, it beats radio dedications.

After an afternoon with MUD, I'll admit to being hooked. All I can say to anyone who doesn't have a modem/can't wait for Century to make it available, is, get those UCCA forms off to Essex.

Hardware Review

Big brother

Hardware *Plus 1 Expansion Unit* **Micro** Acorn Electron **Price** £59.90 **Supplier** Acorn Computers, 4a Market Hill, Cambridge.

When I first bought my Electron I was obviously aware that it wasn't quite the same as its big brother the BBC, but took solace in the fact that it was a lot cheaper and that an interface providing a printer port would be coming soon.

My hopes were well founded — it didn't take long to come and at £56 90 it now gives me very nearly a 'big brother' for about £255 as opposed to £399.

To me the Plus 1 unit is very good value for money It allows my Electron to at last use a printer, joysticks and, eventually, Rom cartridges.

The analogue interface not only provides the facility for joysticks but virtually, in theory, allows the Electron to be used in control applications. Any electrical sensor apparatus could, in principle, be coupled up The interface measures electric currents and converts them to a numeric form.

However being an analogue port does mean that any game requiring a joystick will need analogue units to be connected. Most of the other interfaces on the market so far for the Electron have used switched joysticks Whilst Acornsoft games needing joysticks will no doubt be compatible with the Plus 1, other software houses who already produce titles compatible with the switchable type may need some encouragement to make their programs compatible

Having said that, I have found it very strange moving from key controlled games to joystick control. Whilst my fingers have learned to locate accurately the required keys, my hand has yet to develop the reflexes necessary for the joystick.

For me the most important facility the Plus 1 offers is the Centronics-compatible parallel interface which allows me at long last to couple up to a printer. It's only really when you haven't got a printer that you realise its true value

Not only that but I found the Plus 1 manual far easier to follow than the manuals I have read which accompany printers — the Plus 1 manual lists all the previously unlisted *FX calls that are needed when using a printer

Rather curiously, the Plus 1 also has two Rom cartridge ports Where do I get a Rom cartridge to try? To date it would appear that there aren't any to be had. The BBC B also has a cartridge facility though again there are no cartridges to use with it All very strange

This is a pity because Rom cartridges allow for virtually instant loading of games programs, etc, by merely plugging them in. No more time wasting with cassettes. It could also allow other computer languages to be used provided in the form of plug-in Roms Not only is the Plus 1 very good value for money, but at last it provides the kind of facilities before only available to BBC owners

The Plus 1 is a very neatly designed and powerful extension.

Fred Short

Extra Ram

Hardware *E00 Disk Filing System* **Micro** BBC B **Price** £24.95 **Supplier** MRM Software, 17 Cross Coates Road, Grimsby, South Humberside, DN34 4QH.

One of the problems with Acorn's own disc filing system (DFS) is that it uses up some of the RAM (2 75K) that is usually available for programs.

MRM Software have produced a DFS that does not use up any of the available RAM. Unlike Acorn's DFS, which comes on a single chip, the MRM DFS comprises three chips, and is mounted on a two inch square board.

When trying the MRM DFS with a large number of commercially produced programs, it performed well and no problems were found, however, in order to avoid using the RAM on the computer, some sacrifices have been made The most notable is that only four files can be open at the same time, whereas the Acorn DFS allows up to five.

The MRM DFS is intended for anyone who already has a DFS in their computer, but finds that the amount of RAM left for their programs is insufficient for their needs. The way in which the MRM DFS operates is the same as Acorn's and MRM assume that any manuals and formatting disks are provided by the supplier of the original DFS and therefore do not supply any themselves.

The MRM DFS cannot be considered to be fully Acorn compatible because of the inability to open up to five files simultaneously However, MRM do offer the facility to keep the original and their DFS in the machine at the same time and to switch between them when necessary

Only worth thinking about if you need a little extra RAM.

Stephen Hamill



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Reviews

Zaps & pows

Program *Spectrum Sound Effects* **Micro** Spectrum **Price** £7.95 **Supplier** MFM Data Services, 141a Camden Road, Tunbridge Road, Tunbridge Wells, Kent TN1 2RA.

Let's face it — the Spectrum isn't ever going to have amazing sound no matter what.

What has been achieved with the programs that have appeared so far is nevertheless pretty surprising though — zaps and pows never thought possible.

There are a few programs on sale to let you play around with the sound on the Spectrum — basically using machine code you can make a number of very short boring sounds appear to be one interesting sound.

Perhaps the best of these programs is *Spectrum Sound Effects* from MEM Data Services. This program lets you design and store sounds and then play them using the keyboard. It will even show you a (sort of) waveform for the sound. You can incorporate sounds into your own programs and keep a library of 50 sounds in the computer at any time.

Despite the limitations, it's certainly good fun for people who like to play around with sounds although Commodore 64 owners should try to restrain their mirth.

Ian Waitham

Dizzy!

Program *Alien Break In* **Micro** Electron **Price** £6.95 **Supplier** Romik Software, 272 Argyll Avenue, Slough, Bucks.

My first impression when I saw the screen display of *Alien Break In* was how extraordinarily fast it was. For the Electron, or even the BBC, this display of aliens whizzing around the screen is enough to send you dizzy. What a pity, therefore, that the game doesn't allow continuous firing, but only one bullet at a time until that bullet reaches its target.

The mother ship lays pods that hatch on landing or split into two if shot. Other ships peel off from the main fleet and fire towards holes made in the defences. The successful ones mutate into mother ships which are indestructible.

Alien Break In is a cross between *Space Invaders*, *Killer Moths* and a few other games, all of a similar nature with a similar objective in mind. Having accepted this lack of originality, there was much I was impressed with, not so much the game itself but in the way Romik Software have given a lot of consideration to the needs of the player.

At the beginning, you are allowed to choose your own keys with which to play; so often games producers choose difficult key combinations. You can, also at the very beginning, choose your level of play. If like me, you're not so hot at some games, it gets rather discouraging to be stuck at one level.

Also a rare facility is the incorporation of an automatic demonstration of the game should you not press the space bar to begin. How often are the instructions as clear as mud and, until you've been 'killed' several times, impossible to grasp the objective.

So whilst the game is like so many others it merits praise for its user considered facilities. Well done, Romik Software.

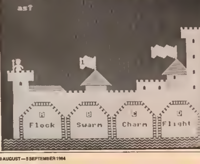
Fred Short

Sand-bags

Program *Answer Back Junior Quiz* **Price** £10.95 **Micro** BBC B **Supplier** Kosmos Software, 1 Pilgrim's Close, Harlington, Dunstable, Beds.

Save the maiden on the battlements from a nasty dragon! Answer the question correctly and your hot-air balloon is free to chase the beast and bomb it with sand-bags. That's the reward for success in Keith Spence's quiz program. It's important because otherwise you might just buy a quiz book. Apart from this bit of arcade action, you finish up with a score sheet that includes the number of maidens eaten!

After loading a master handling program, you select one of 15 general knowledge quizzes such as 'Nature', 'TV Films and Theatre', Games and Sport'. Then choose the number of questions and whether to be timed. There are three formats: multiple choice (choose A,B,C or D), yes/no or complete the answer (where l?t?er? are missed out and you have to type them in.) You can choose which format or have a random selection. I could not fault Susan Van Baars's question research.



The quizzes can be modified or you can invent your own. The master program makes this extremely easy and demands no programming knowledge. This facility alone will recommend it to many teachers.

Finally, a word of special praise for Roz Woodcock's very attractive cover painting (14" x 8" when opened out). This brings micro program packaging into the same class as top-rate album sleeves, though it would not reproduce well in our columns.

Dave Walterson

Reviews

Jungle life

Program *Pitfall* **Micro** Commodore 64 **Price** £9.99 **Supplier** Activision UK, CGL House, Goldings Hill, Loughton, Essex

Pitfall from Activision is another jungle game for the Commodore 64

In fact, it bears an amazing similarity to another game recently reviewed — *Cuthbert in the Jungle* — the setting, the hazards and the goals are all the same

Not surprising then that — since this is the original — Activision have recently taken legal action to stop Microdeal continuing to sell *Cuthbert*

In this official version of the game you have to guide someone called Harry through the jungle in search of various valuables like money bags, silver and gold bars and diamond rings. However, there are plenty of obstacles in his way — if the cobras or quicksands don't get you, the crocodiles or rolling logs probably will. You have to avoid these hazards by either jumping over them or swinging over them on a vine. An alternative route is via the underground tunnels, but these contain deadly scorpions and the path is sometimes blocked by brick walls

Although the range of hazards is quite small, variety is produced by changing their distribution on the different screens as Harry runs through the jungle. The graphics are nicely done, and the overall presentation is better than the otherwise almost identical *Cuthbert in the Jungle*. Like Cuthbert the game is good fun for a while, but it soon becomes rather repetitive

Richard Corfield

Detonated

Program *Blocker* **Price** £7.95 **Micro** BBC B **Supplier** Thor, Erskine Industrial Estate, Liverpool.

This fast action game by Martin J Sykes involves running to collect a set of detonators. You can only tread on blocks, but they disintegrate after you pass so choose a path with care. There is screen wraparound so you can go in a single step from one edge of the screen to the opposite one. Obstacles in the form of TNT sticks appear on some blocks — hit them and you die. You must complete the task in 20 seconds or be fried by a million volts!

Just to make the task harder, you are pursued by giant boots; if they tramp on you it's all over!

Between frames of the main game there is a diversion for bonus points. A simpler version of the field of blocks is presented with just one detonator at the bottom of the screen. You start by bouncing left to right at the top of the screen and choose your moment to dive for the detonator — trying to avoid any TNT.

The action, if not totally original, is fast, furious and just simple enough for you to feel frustrated when you cannot quite make it, so you try again and again. Very good fun.

Dave Atterson

Forgettable

Program *Oracle's Cave* **Micro** Commodore 64 **Price** £7.95 **Supplier** Dorcas Software, 3 The Oasis, Glenfield, Leicester

Oracle's Cave from Dorcas Software follows the current trend of combining an adventure game with some graphics to add to the interest.

In the game, you find yourself in a mysterious cave complex, into which you have inadvertently wandered. To escape, you must collect up 40 units of treasure, including that guarded by the cave dweller of your choice, and then defeat the mighty Oracle, all within five days.

The screen is divided into various sections. The top half shows you a picture of the part of the cave where you are currently standing. Another part displays your present status — energy, strength and what you are carrying. A third area gradually builds up a map of the caves, which saves you the bother of drawing your own.

It is a fairly standard, uncomplicated adventure with not many locations or objects to bother about. Although quite nicely presented the game does have one or two irritations. For example, all the commands and objects are represented by one-letter codes which are rather forgettable. Also, if you accidentally clear the screen, the display is ruined and it never sorts itself out.

It is difficult to see who this game will appeal to. Dedicated adventure gamers will probably find it too simple and there is no action to appeal to arcade fans.

Richard Corfield

Gin sling

Program *Shaken Not Stirred* **Micro** QL **Price** £8.95 **Supplier** Soft in the Head, Front basement, 67 Earl's Court Square, London SW5 9DQ

The first non-serious QL program (well, serious to some maybe) is *Shaken Not Stirred* by the wonderfully named Soft in the Head Software

What this ingenious and vital program does is provide you with the recipe for most cocktails known to mankind.

The system to find the cocktail could hardly be simpler, you simply type in a series of letters and the computer finds any cocktail or ingredient containing those letters, for example, typing mar will find you Marghanta whilst gren will find you both the cocktail grenacher as well as grenadine the ingredient.

The only problem appears to be that there is no facility to add your own cocktails to the database and I suspect that many of the cocktails are also known by a vast number of other names so a synonym collection would have been useful.

It should also be noted that the program costs £8.95 a price doubtless not unrelated to the fact that blank microdrives cost £4

Ian Waltham

SHAKEN NOT STIRRED

Invisible wall

Program *Spy School* **Micro** Commodore 64 **Price** £3.95 **Supplier** Dimension 21, 91 The Broadway, Southall, Middlx.

It's a pleasant change to come across a new arcade game which seems to have an original theme. In *Spy School* from Dimension 21, as the name implies, you have to perform various tricky tasks which even James Bond might find intimidating.

You have to shoot down a whole squadron of enemy helicopters. You have to collect a briefcase (no doubt full of secret documents) and make your escape while dodging detector beams which trigger off a deadly rain of shells. Or you have to find your way to safety through a maze of trees, mines and invisible walls.

After you complete each task the rescue helicopter arrives to fly you back to home base. If you achieve all the objectives on level one the whole process is repeated, but is made a bit more tricky.

The game is quite interesting for a while, especially as the theme is rather unusual, but, unfortunately, it does become rather repetitive.

What is more, the graphics and sound are rather lacklustre and really not up to the high standard which most games for the 64 now achieve.

A pity, because the idea itself has plenty of potential.

Richard Corfield

Melt-down

Program *Atom Smasher* **Micro** Electron **Price** £5.95 **Supplier** Romik Software, 272 Argyll Avenue, Slough, Berks.

The object of *Atom Smasher* is to prevent melt down of a nuclear reactor. All I can say is, if what the game requires is all that is needed to prevent the real thing happening, then living as I do within two miles of a nuclear power station which was approximately nine years behind schedule and is constantly taken "off line" because of "slight hick-ups", it does not justify the constant worry I have of the real thing happening.

The game begins with a blue electron moving rather erratically around the neutron. To delay melt down you must shoot the proton, which moves around the purple nucleus, with your remote controlled super laser.

Each time you shoot the proton, an extra electron appears. If you collide with an electron, you lose one of your three lives. If you shoot an electron, everything speeds up for a short time until the electrons cool down a little. If you delay shooting, melt down starts.

The molten debris approaches the nucleus from each side. You can blast the debris away, but the only way that you can stop it from advancing is to keep shooting the proton.

That's the theory of the game. *Atom Smasher* is yet another example of the actual game not living up to the excitement which the written blurb attempts so colourfully to infuse into a prospective purchaser.

Fred Short

Star map

Program *Starseeker* **Price** £7.95 **Micro** BBC B **Supplier** Mirrorsoft, Holborn Circus, London EC1P 1DQ.

Starseekers could only exist in a Planetarium or on a computer. The main program shows you the stars — from anywhere on Earth and at any time between 1st January 1900 and 31st December 2100. You can look in any direction and zoom in on items of interest.

The constellations can be outlined and named, and by placing a cursor over any star, you can learn its vital statistics. It's even possible to dump key images onto an Epson printer and carry a star-map with you at night.

There is a mass of information in this program and booklet, it's here astronomy comes to life. You can even watch stars move as the night progresses.

The second part is *Solar System* which provides similar detailed views of our home area, paying special attention to the Moon and Halley's comet. The comet comes close to earth once every 76 years and early 1986 will be the best time to see it.

The program is sensitive about any extra paged ROMs on board your Beeb. A quick poke of ?&2AD=0 before loading solves that.

Dave Waiterson

Deadly spikes

Program *Ghouls* **Micro** Electron **Price** £6.95 **Supplier** Micro Power, Sheepscar House, Sheepscar Street South, Leeds LS7 1AD

I was beginning to wonder if games inventors had run out of ideas, since quite a lot of so called 'new' games have obviously been rehashes of older tried and tested models. *Ghouls* nearly comes into this category with its similar nature to *Pacman* type games.

Your task is to rescue the power jewels from the creepy mansion on the top of the hill. Sounds easy until you are confronted with deadly spikes, not to mention the nasty spider that jumps up and down ready to catch you. Eating the yellow titbits earns you extra points and a stray power jewel causes the ghosts to disappear.

The game gives you the choice of key control or joysticks, but not those used with Acorn's Plus 1. This highlights the problem Acorn have given their Plus 1 buyers, since to date Electron interfaces have opted for the more familiar switch type joystick and games producers like Micro Power have incorporated switched joystick option.

I like the novelty of the game, the option of stopping the action mid-game, sound or no sound and more important, the option of returning to the instructions.

Fred Short

Recalled from memory

Graeme Brown helps you trace characters in memory with his machine code program

This short machine code routine allows you to input the coordinates of a character position and it will return with the address in the display file that corresponds to the top pixel row of that position. This may be useful within a larger machine code program when the construction of a graphic is required. Once the top pixel address is known, the remaining 7 lines can be found simply by adding 256 to each address until the complete character position is filled. It is, in some ways, easier to do this routine in Basic but the machine code version shown here is intended as a subroutine to a larger program that can be called when required.

The program itself is quite simple and makes use of the following formula.

Top. Address (X Y)= 16384+INT(X/8)*2048+(X−INT(X/8)*8)*32+Y

where X = Row coordinate

Y = Column coordinate using the *Print At* format.

The program is shown in listing 1 in a demonstration form and lines 10 to 60 *Poke* the code directly into memory. It uses the printer buffer so disconnect your printer if you have one. I use the printer buffer for testing any short routines since *Ramtop* does not need to be moved and at 256 bytes long it is big enough for most routines.

The program asks you first for the row coordinate then the column coordinate of the required position. It will return from the routine and print the address. If the routine is included as a subroutine within a larger program, then the swapping of the HL and the BC registers is not strictly required. This was done as part of the demonstration to enable the calculated value to be "handed back" to the Basic operating system.

```
LD   HL,          Load address containing ROW
     ROWSTORE     coordinate
LD   B (HL)       Put it into B
INC  HL           Point to address of COLUMN
                  coordinate
LD   C, (HL)      Put it into C
LD   HL, 16384    Start of display file
LD   A, 248       Load mask and use to find
AND B             which screen portion the
                  required address is in
PUSH AF           Save this value on stack
ADD A, H          Add it to the HIGH byte of
LD   H, A         HL
LD   A, B         Get ROW coordinate
POP  DE           Load DE with screen portion
                  indicator
SUB  A, D         Reduce ROW no. to a line within
                  a particular screen portion
ADD A, A
ADD A, A
ADD A, A          Multiply by 32
ADD A, A
ADD A, A
ADD A, C          Add COLUMN coordinate
LD   L, A         Make the result the LOW byte
                  of HL
PUSH HL           Swap HL and BC
POP BC
RET               Return
```

Note

The swapping of the HL and BC registers is only required if the program is being run in response to a *Usr* command. This is to ensure that the address required can be printed using the Basic command *Print Usr* storage address. If the routine is used as a sub routine within a larger M/C program then the address can be left in the HL register as it is normally used for this purpose.

```
 10 REM --+ ADDRESS FINDER ++*
 20 REM ++++--*****+++***+***+
 30 FOR A=2[illegible]05 TO 20302
 40 READ D
 50 POKE A,D
 60 NEXT A
 70 DATA 3[illegible] 4,91 70.05 72 33 0
64 [illegible] 160 245 132 103 120 20
 [illegible] 105 105,105,105 129 11
 [illegible] 201
 80 REM ---COORDS INPUT**-
 [illegible] REM +*---++*****+**-**
 90 PRINT "INPUT THE ROW COORDI
NATE"
100 INPUT R
110 IF R 23 THEN PRINT AT 12 4
 INVALID INPUT   PAUSE 100  CLS
 GO TO 90
120 PRINT "INPUT THE COLUMN COO
RDINATE"
130 INPUT [illegible]
140 IF [illegible] THEN PRINT AT 12 4
 [illegible] INPUT   PAUSE 100  CLS
 [illegible] 120
150 [illegible] POKE 23300 R  POKE 23
,C1
160 [illegible] =23305
[illegible]
[illegible] INPUT THE COLUMN COO
RDINATE
```

```
7D00                 ORG  32000
7D00 21045B          LD   HL 23300
7D03 46              LD   B (HL)
7D04 23              INC  HL

7D05 210040          LD   HL 16384
7D08 3EF8            LD   A 248
7D0A A0              AND  B
7D0B F5              PUSH AF
7D0C 84              ADD  H
7D0D 67              LD   H A
7D0E 78              LD   A B
7D0F D1              POP  DE

7D10 92              SUB  D

7D11 87              ADD  A
7D12 87              ADD  A
7D13 87              ADD  A
7D14 87              ADD  A
7D15 87              ADD  A

7D16 81              ADD  C
7D17 6F              LD   L A

7D18 E5              PUSH HL
7D19 C1              POP  BC

7D1A C9              RET
                     END
#       5D0B
```

Tracing a line

***Andrew Pennell** makes use of the QL's multi-tasking to give the machine a Trace facility*

This program uses the most powerful feature of the QL — multi-tasking — to add a *Trace* ability to SuperBasic.

To my knowledge, not only is this the first QL machine-code program to be published, but it must be the first to use multi-tasking. What it does is to set up a small program that constantly monitors Basic, and prints the current line number at the top of the screen. It can do this as it seemingly runs at the same time as the Basic interpreter.

To use it, firstly type in the listing, and save it before running. Next, *Run* it, and you should be greeted with *"loaded OK"*. If you get *"wrong data"* then you must have made a mistake in the data somewhere. To turn the *Trace* on, you have to *Call 261120* (It's important that you only do this call once). You should get "–0" printed at the very top left of the screen. Next you should *Call 261192,8*, which sets the speed of the trace to an average value. From now on, any program that *Runs* should be accompanied by a display along the top of the screen of the line number each time it changes, separated by dashes.

On my television, there is quite a gap between the top of the screen, and the top of the listing window. If you don't have such a gap on yours, you can change Line 160 to position your *Trace* window at a more convenient place, but try not to make it clash with any other windows. If you changed it to *a$="ser1"* then the trace will appear on a printer, but firstly set the printer's width using control codes, or else it will all be printed on one line of paper!

A machine-code program that runs under multi-tasking is known as a 'job', and normally on the QL only one job is running — the Basic interpreter. However, what the machine-code does is to set up a second job, the sole purpose of which is to print line numbers every time they change. Each job has a speed factor, from 1 to 32, and this determines how fast it runs compared to the other jobs. Basic runs at the maximum of 32, but *Trace* works OK at a speed of 8 and this is what the *CALL 261126* is for — you can change the speed of the *Trace*. Normally 8 is OK, but sometimes 16 gives better results, and if you want to be extravagant you could get it to run at 32. Note that the faster you make the *Trace*, the slower Basic runs at, so that a *Trace* speed of 32 will make Basic half its normal speed. A speed of 0 will switch *Trace* off, and make Basic run normally.

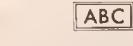
With *Trace* enabled, the *Respr* function cannot be used, and will give a 'not complete' error. Also, during some I/O operations, you can get strange numbers printed, and a *Mode* instruction makes the print-out disappear, for (as yet) unknown reasons. After you've run the loader program, you can safely do a *New* — *Trace* will remain intact, and possibly running.

An assembly language listing of this program, along with masses of other information, will shortly be available in my forthcoming book *Assembly Language Programming on the Sinclair QL* published by Sunshine Books.

```
10 REMark ******************************
20 REMark ********* TRACE ***********
30 REMark **(C) Andrew Pennell 1984**
40 REMark ******************************
50 REPeat makeroom
60 IF RESPR(0)<=261120 THEN EXIT makeroom
70 a=RESPR(1024)
80 END REPeat makeroom
90 t=0
100 RESTORE
110 FOR i=261120 TO 261305
120 READ a
130 POKE i,a:t=t+a
140 NEXT i
150 IF t<>12642 THEN PRINT #0;"wrong
data":STOP
160 a$="scr_400x12a40x4"
170 POKE_W 261220,LEN(a$)
180 FOR i=1 TO LEN(a$):POKE 261221+i,
CODE(a$(i))
190 PRINT "TRACE loaded OK"
210 PRINT "to setup: CALL 261120"
220 PRINT "speed    : CALL 261192,?"
230 DATA 114,0,36,60,0,0,0,62
240 DATA 66,131,34,67,112,1,78,65
250 DATA 67,250,0,76,34,129,34,124
260 DATA 0,3,252,124,36,60,0,0
270 DATA 0,61,16,217,81,202,255,252
280 DATA 112,1,118,2,65,250,0,54
290 DATA 78,66,67,250,0,38,34,136
300 DATA 16,60,0,10,34,58,0,32
310 DATA 116,1,118,0,70,65,78,117
320 DATA 34,121,0,2,128,104,34,105
330 DATA 0,4,19,65,0,19,66,128
340 DATA 78,117,0,0,0,0,0,0
350 DATA 0,0,255,255,0,15,83,67
360 DATA 82,95,52,48,48,88,49,50
370 DATA 65,52,48,88,52,0,0,0
380 DATA 0,0,0,0,46,124,0,4
390 DATA 0,0,32,121,0,3,252,90
400 DATA 34,121,0,2,128,16,50,41
410 DATA 0,208,178,121,0,3,252,98
420 DATA 103,232,51,193,0,3,252,98
430 DATA 18,60,0,45,118,255,112,5
440 DATA 78,67,50,57,0,3,252,98
450 DATA 52,121,0,0,0,206,78,146
460 DATA 96,200
```

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Error trap

***Wayne Smithson** helps cut down Dragon loading problems with this machine code utility*

Although the Dragon has superior saving and loading procedures to many of its rivals, that doesn't stop the dreaded *I/O Error* occurring . .

Here is a program to combat the *I/O Error* and so relieve the tension of Dragon owners everywhere.

This program sits at the top of *Ram* and, whenever a *Cload* or *Cloadm* command is typed in, the program notes which you chose and, if an *I/O Error* occurs, the program effectively types it in again for you. When you type *Cloam/m* in, the program doesn't remember the name, however; this is in case you get an *I/O Error* in the middle of a program or you type in the wrong name. In other words, the computer will search for a file of the name typed unless an *I/O Error* is encountered, in which case the next valid file will be loaded in.

After some thought, I decided not to check for an *F/M Error*. This is because you may want to find a file on a cassette without loading it in. To do this just type *Cloadm* for a Basic program and *Cload* for a machine code program. The computer will click through the tape until it finds the file, the name will be printed on the screen and an *FM Error* will occur. You will then be just past the beginning of that program, and no corruption will have taken place.

The program itself occupies 65 bytes at the top of *Ram*, it isn't repositionable unless you have an assembler. The Basic loader will insert the machine code and check it for mistakes. The assembler listing is included with brief notes for those interested.

Some locations of interest are -

401-403 Whenever an error occurs, Basic jumps here and does nothing in particular so you can intercept any error. (Each has a number held in the B ACC. If B =0 then no error).

377-379 Whenever a Basic command is typed in, a jump is made here which does nothing so intercept this and you can tell which command has been typed in. (Token will be in A ACC).

&HA6 Basic pointer tokenise a Basic line store it address pointed to by this location-1 load A ACC. with the first token and the computer will think it is running a Basic line (doped). Each line note and wait a 6.

The Basic tokens can be found in PCW (Vol 2 No 43) October 1983 and please note that:

Cload token=153

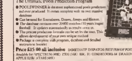
Cloadm token=153,77 (A ACC.=77)

```
*******I/O ERROR  GO HOME*******
********WAYNE J SMITHSON********
        ORG #32701 *THESE CAN BE
        PUT #32701 *CHANGED.

        CMPA #153   *CLOAD/M ?
        BNE OUT     *NO, RETURN
        LDX $A6
        LDB 1,X     *CHECK FOR
        CMPB #77    *CLOADM
        BEQ MCODE   *YES, KEEP 'B'
        CLRB        *NO, CLEAR 'B'
MCODE   STD $7FFE   *TEMP. STORE
        LDX #ERROR
        STX 402     *INTERCEPT
        LDA #$7E    *ERROR HANDLER
        STA 401     *TO MY ROUTINE
        LDA #153    *CLOAD/M TOKEN
OUT     RTS
ERROR   CMPB #42    *I/O ERROR ?
        BEQ IOERR   *YES, RELOAD
CLEAR   LDX #$3939  *RESTORE ERROR
        STX 401     *HANDLER
        STX 402
        RTS
IOERR   LDD $7FFE   *GET TEMP.
        LDY $A6     *STORE & CLEAR
        CLR 1,Y     *PUT TEMP. AT
        STD ,-Y     *1 LESS 'Y'
        CMPB #0     *CLOAD ?
        BEQ CLOAD   *YES
        LDA #77     *NO, CLOADM
CLOAD   JSR 46804   *JSR CLOAD/M
        BRA CLEAR   *GOTO BASIC.
```

```
0 CLEAR200.32700.CLS.PRINT"machine code
loading'
1 FORN=1 TO 65:READ A$
2 POKE32700+N,VAL("&H"+A$).PRINT@32,3270
0+N
3 C=C+VAL("&H"+A$):NEXT
4 IF C<>7771 THENPRINT"cock-up!"-SOUND1,
10:END
5 POKE378.&H7F:'HEX ADDRESS OF
6 POKE379,&HBD:'MY ROUTINE.
7 POKE377,&H7E:'TO ENABLE
8 'POKE377,&H39 TO DISABLE.
9 PRINT'load successful!":SOUND150,10
10 DATA 81,99,26,19,9E,A6,E6,01,C1,4D,27
,01,5F,FD,7F,FE,8E,7F,DB,BF,01,92,86,7E,
B7,01,91.86,99,39,C1,2A,27,0A,8E,39,39,B
F,01,91.BF,01,92,39,FC,7F,FE,10,9E,A6,6F
,21.ED.A2,C1.00,27,02,86,4D,BD,B6,04,20,
E1
======> BASIC LOADER <=======
```







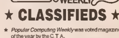






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SABRE WULF

In the heat of the night

***Alex Treacher's** program enables you to predict and calculate the rate of meteor showers*

I find that observing meteor showers, or shooting stars, can be the most satisfying form of astronomy. All you need is a deck-chair and warm clothing (It gets quite chilly at 3am, even in the summer). To make accurate observations you will need a tape recorder or pen and paper to note what you see. Then, just sit back and watch!

The activity of a particular meteor shower — ie, meteors per hour — starts off at zero, increases, peaks, and then diminishes again. The date and time of these occurrences can be found in various publications, such as *The Astronomical Almanac*, and the *Handbook of the British Astronomical Association*, as they vary from year to year. The activity is measured by the Zenithal Hourly Rate (ZHR). If the radiant (ie, the point in the sky the meteors seem to be coming from) was directly overhead — at the zenith — and the weather conditions were perfect, the number of meteors observed every hour should come very close to the ZHR. Are all these conditions ever met? Not a chance.

Hence this program: working on average figures for the showers' rates, which strictly speaking ought to be updated every year, this program calculates the Expected Hourly Rate for the showers included in the program. I have excluded data on several minor showers, as they are often difficult to observe. To include these, their rates for each day should be put into the data for array *RT%* (lines 1440-1620), add the appropriate data between lines 1330 and 1420, and alter the day-number testing (lines 260-350) to recognise the appropriate dates, and to collect the data.

Some of the showers extend beyond the dates in the program, but as the ZHR for these days is less than five, the shower would hardly be noticeable. I have made the Ursids the exception to this rule because they are very poorly observed. They occur so close to Christmas that, even if the sky is clear, everyone is so full of bonhomie that meteors are the last thing on their mind!

I'm still working on the *Proc* to figure out if it's going to be cloudy! In the meantime, good observing.

Important Variables

Y Year
M Month
D Date
T Time
Daynum Number of day (1-366) that has been selected.
RT%() Rate for every day in year
Strms Name of selected stream.
Fsts First day of activity (day/month)
Lsts Last day of activity (day/month)
Max Date of maximum activity
Mxzhr ZHR for above date
Rate ZHR for the selected day
Ehr Activity expected for data and time selected
Ra Right Ascension of radiant (decimal)
Dec Declination of radiant (decimal)

Line Descriptions

180-210 User input: numerical input for all responses. Time should be in decimal form.
2630-350 Identifies which stream visible (if any) and selects correct data.
400 Puts an ending on the date of maximum.
430-510 Displays data.
1020-1040 If the rate for the selected date is zero, the program assumes that no shower is present.
1330-1420 Data for individual streams.
1440-160 Rate for each day of year

Procedures

Procdataload Reads lines 1440-1620 into array RT%
Procdaynum Calculates how many days into year the selected date is. (Accounts for leap years.)
Procalt_az Calculates elevation and bearing of the radiant. Line 960: Replace 0.0276 with −0.066 for every degree you are west of Greenwich.
Lines 900 and 930: Replace 51.62 by your own latitude (decimal)
Procehr Correction of Hourly Rate for altitude of radiant.

```
L.
   10 REM  METEOR VISIBILTY V1.5
   20 REM   84/8/1  A.T.
   30
   40 REM PROCalt-az originally written
   50 REM  for ZX81 by W. Cartwright
   60
   70
   80 *TV255
   90 MODE7
  100 VDU23,1,0;0;0;0;
  110 PRINTTAB(9,10)CHR$141"METEOR VISIB
ILITY"
  120 PRINTTAB(9)CHR$141"METEOR VISIBILT
TY"
  130 W=INKEY(300)
  140 PROCdataload
  150 REPEAT
  160 CLS
  170 VDU23,1,1;0;0;0;
  180 INPUT'"Year ",Y
  190 INPUT'Month ",M
  200 INPUT'Day ",D
  210 INPUT"Time ",T
  220 VDU23,1,0;0;0;0;
  230 PROCdaynum
  240 SS=DAYNUM
  250 CLS
  260 IFSS>1 AND SS<6 RESTORE1340 GOTO36
0
  270 IFSS>109 AND SS<115 RESTORE1350 GO
TO360
  280 IFSS>116 AND SS<137 RESTORE1360 GO
TO360
  290 IFSS>213 AND SS<223 RESTORE1370 GO
TO360
  300 IFSS>291 AND SS<298 RESTORE1380:GO
TO360
  310 IFSS>304 AND SS<313 RESTORE1390:GO
TO360
  320 IFSS>319 AND SS<324 RESTORE1400 GO
TO360
  330 IFSS>343 AND SS<350 RESTORE1410:GO
TO360
  340 IFSS>352 AND SS<358 RESTORE1420 GO
TO360
  350 IFSS>5ORSS<110OR SS>114ORSS<117OR
SS>136OR SS<214OR SS>228OR SS<292OR SS>2
97 OR SS<305OR SS>312OR SS<320OR SS>323O
R SS<344OR SS>349OR SS<353OR SS>357 ORSS
=1 THEN1020
  360 READSTRM$,MAX,FST$,LST$,MXZHR,RA,D
EC
  370 PROCalt_az
  380 RATE=RT%(DAYNUM)
  390 PROCehr
  400 DT$="th" IFINT(MAX+.5)=1 DT$="st"
ELSE IFINT(MAX+.5)=2 DT$="nd" ELSE IFINT
(MAX+.5)=3 DT$="rd"
  410 CLS
  420 TT=20-(LEN(STRM$)/2)
  430 PRINTTAB(TT)STRM$
  440 PRINT
  450 PRINT"The shower extends from ";FS
T$;" to ";LST$
  460 PRINT "The date of maximum is the
";MAX;DT$
  470 PRINT'"The ZHR at maximum is ";MXZ
HR
  480 PRINT'"The ZHR for today is ";RATE
  490 PRINT "For ";T;" UT on ";D;"/";M
```

continued over the page



```
500 PRINT'"The expected hourly rate is
",EHR
510 PRINT'''''"Press any key to run ag
ain"
520 A=GET
530 UNTILFALSE
540 END
550
560 DEFPROCehr
570 IFALT>=66 EHR=RATE
580 IFALT>=52 AND ALT<65 EHR=RATE/1.11
590 IFALT>=43 AND ALT<51 EHR=RATE/1.29
600 IFALT>=35 AND ALT<42 EHR=RATE/1.43
610 IFALT>=27 AND ALT<34 EHR=RATE/1.67
620 IFALT>=21 AND ALT<26 EHR=RATE/2.0
630 IFALT>=15 AND ALT<20 EHR=RATE/2.5
640 IFALT>=9 AND ALT<14 EHR=RATE/3.3
650 IFALT>=3 AND ALT<8 EHR=RATE/5.0
660 IFALT<3 EHR=RATE/10.0
670 EHR=INT(EHR+0.5)
680 ENDPROC
690
700 DEFPROCalt_az
710 REM M=MONTH,D=DAY,T=HOUR
720 REM RA=RA, DEC=DEC
730 IFM>2 THEN 780
740 B=M-1
750 R=INT(B*63/2)
760 DYS=R+D
770 GOTO820
780 A=M+1
790 C=INT(A*306/10)
800 H=C-63
810 DYS=H+D
820 REM********DYS - DAYS
830 A=DYS*0.065709
840 B=A-17.377592
850 S=T*1.002743
860 LST=S+B-0.0276
870 IFLST>24 LST=LST-24
880 IFLST<0 LST=LST+24
890 H=(LST-RA)*15
900 ALT=(SIN(RAD(DEC))*SIN(RAD(51.52)))
+(COS(RAD(DEC))*COS(RAD(51.52))*COS(RAD
(H)))
910 Q=DEG(ASN(ALT))
920 ALT=Q
930 AZ=(SIN(RAD(DEC))-(SIN(RAD(51.52))
*SIN RAD(Q))))/(COS(RAD(51.52))*COS(RAD(
Q)))
940 Z=DEG(ACS(AZ))
950 W=SIN(RAD(H))
960 IFW<0 AZ=Z
970 IFW>0 AZ=360-Z
980 ALT=INT(ALT+0.5)
990 AZ=INT(AZ+0.5)
1000 ENDPROC
1010
1020 REM error trap
1030 PRINT' "There is no major shower o
n ";D;"/";M
1040 PRINT ' "Press any key to run agai
n"
1050 A=GET
1060 UNTILFALSE
1070
1080 DEFPROCdaynum
1090 YEAR=Y MONTH=M DAY=D
1100 IFMONTH>2THEN1150
1110 MO=MONTH-1
1120 IFYEAR/4=INT(YEAR/4)THEN MO=MO*62
ELSE MO=MO*63
1130 MO=INT(MO/2)
1140 GOTO1180
1150 MO=MONTH+1
1160 MO=INT(MO*30.6)
1170 IFYEAR/4=INT(YEAR/4)THEN MO=MO-62
ELSE MO=MO-63
1180 MO=MO+DAY
1190 DAYNUM=MO
1200 IFYEAR/4=INT(YEAR/4) LPYR=TRUE ELS
E LPYR=FALSE
1210 IFLPYR=TRUE AND M>2 DAYNUM=DAYNUM-
1
1220 ENDPROC
1230
1240 DEFPROCdataload
1250 DIMRT%(366)
1260 RESTORE1440
1270 FORDN%=1TO365
1280 READRT%(DN%)
1290 NEXT
1300 ENDPROC
1310
1320
1330 REM DATA STREAM,MAX,1ST DAT,2ND DA
T,ZHR,RA,DEC
1340 DATAQUADRANTIDS,4,25,1/1,6/1,60,15
,46,50
1350 DATALYRIDS,22,6,19/4,25/4,15,18,13
,32
1360 DATAETA AQUARIDS,6,24/4,20/5,40,22
,3,-1
1370 DATAPERSEIDS,13,23/7,20/8,100,3,06
,56
1380 DATAORIONIDS,21,16/10,26/10,20,6,4
,15
1390 DATATAURIDS,3,20/10,30/11,12,3,73,
18
1400 DATALEONIDS,18,1,15/11,20/11,10,10
,13,22
1410 DATAGEMINIDS,14,2,7/12,15/12,60,7,
46,32
1420 DATAURSIDS,23,17/12,24/12,5,14,46,
76
1430
1440 DATA0,20,40,60,50,0,0,0,0,0,0,0,0,
0,0,0,0,0,0,0
1450 DATA0,0,0,0,0,0,0,0,0,0,0,0,0,0,
0,0,0,0,0
1460 DATA0,0,0,0,0,0,0,0,0,0,0,0,0,0,
0,0,0,0,0
1470 DATA0,0,0,0,0,0,0,0,0,0,0,0,0,0,
0,0,0,0,0
1480 DATA0,0,0,0,0,0,0,0,0,0,0,0,0,0,
0,0,0,0,0
1490 DATA0,0,0,0,0,0,0,0,0,5,11,14,9,5,
0,0,11,15,19,22
1500 DATA26,29,32,36,40,38,35,32,29,28,
24,21,19,16,14,11,0,0,0,0
1510 DATA0,0,0,0,0,0,0,0,0,0,0,0,0,0,
0,0,0,0,0
1520 DATA0,0,0,0,0,0,0,0,0,0,0,0,0,0,
0,0,0,0,0
1530 DATA0,0,0,0,0,0,0,0,0,0,0,0,0,0,
0,0,0,0,0
1540 DATA0,0,0,0,0,0,0,0,0,0,0,0,5,6,
7,7.5,8.5,9,9.5
1550 DATA14,18.5,25,40,90,38,21,13,5,0,
0,0,0,0,0,0,0,0,0,0,0,0
1560 DATA0,0,0,0,0,0,0,0,0,0,0,0,0,0,
0,0,0,0,0
1570 DATA0,0,0,0,0,0,0,0,0,0,0,0,0,0,
0,0,0,0,0
1580 DATA0,0,0,0,0,0,0,0,0,0,12,16,20
16,12,0,0,0,0
1590 DATA0,0,0,10,11,12,11,11,11,10,1
0,0,0,0,0,0,0,0,0,4
1600 DATA5,7,4,0,0,0,0,0,0,0,0,0,0,0,
0,0,0,0,0
1610 DATA0,0,0,10,15,24,52,60,10,0,0,0,
5,7,10,12,6,0,0,0
1620 DATA0,0,0,0
```


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HUNCHBACK

And to follow . . .

Adrian Warman continues with the second part of his menu program

This week we finish off the assembly listing of the program and also present a Basic loader for those without assemblers.

How the Program works (cont from last week.)

70-73 Finds the value for *ystart*. This value is also placed in *row* which is used to keep track of which screen row the selection cursor is currently on.

74-80 Finds the value for *yend*. Ensures that it is greater than *ystart*.

81-85 Finds the current position of the text screen, and adds this to the *ypos* pointer to the menu position.

86-89 *Ypos* is the master value of the screen position. Knowing the current row that the selection cursor is on, it is necessary to convert this to a memory location, stored in *from*.

90-99 *Row* has the screen row that the selection cursor is on. Using this, it calculates how many screen rows to move down to show the current position of the selection cursor.

100. Highlights this menu item.

101-103. Waits for any key press. When found, it puts the key into *key*.

104 Removes the highlight from the menu item.

106-108. Was the key *F1*. If not goes on to check for a different key.

109-112. Moves up by the number of rows in *skip*.

113-114 If the cursor would be off the top of the screen, goes and tests to see if *wrap* is available.

115-118 Is the cursor past the top of the menu? If so, branches to the end of main loop.

117-124 The cursor is now too high. If *wrap* is allowed, sets cursor position to the bottom menu item — otherwise puts cursor on the top menu item.

126-127 Was the key *F7*. If not it ignores.

128-131 Moves down to next menu item.

132-134 If the cursor is still in the menu item rows, carries on to the end of the main program loop.

136-141 The cursor is past the end of the menu. Depending on the value of *wrap*, moves the cursor to the top or bottom of the menu column.

143-146 Makes a final check. Was the key *Return*? If not, goes and repeats the program loop until selection is made. Otherwise, finish program.

148-150 Should the selected item remain highlighted? If so, sets highlight again.

152-158. *Row* contains the screen row of the selection cursor. Uses this to calculate which menu item this was. The answer is put into the *Y* register.

160-161 Loads *X* with zero in order to return the correct value. Finally it returns to Basic with the menu item number.

166-167 Produces the error message.

171-177 Finds the next parameter in the command line. Routine *getbyt* evaluates and returns a value in the *X* register. This is compared with the maximum value allowed. If it is OK, it returns; otherwise it produces an error.

181-187 Highlights menu item. *From* has the start address of the menu item on the screen. *Width* has the maximum number of characters to highlight.

In practice, the routine is very easy to use but in order to make it as flexible as possible, the calling parameters must be correspondingly powerful. As with most things, the best way to learn how to use the routine is first to run the example program, and then modify it for yourself

```
1000 REM BASIC LOADER FOR MENU SELECTION PROGRAM.
1010 :
1020 REM BY A.WARMAN
1030 :
1040 ADDRESS=49152
1050 SUM=0
1060 :
1070 FOR LOC=ADDRESS TO ADDRESS+273
1080  READ DATUM
1090  POKE LOC,DATUM
1100  SUM=SUM+DATUM
1110 NEXT LOC
1120 :
1130 IF SUM<>34549 THEN PRINT "SUM ERROR."
1140 :
1150 DATA 169, 14,141, 17,  3,169,192,141, 18,  3, 96, 76,238,192,169,  2
1160 DATA  32,243,192,134,139, 32,243,192,134,140,169,  6, 32,243,192,134
1170 DATA 141,224,  0,240,230,169, 40, 32,243,192,134,251,142, 60,  3, 32
1180 DATA 243,192,134,252,138, 56,229,251,141, 62,  3,240,206, 48,204,169
1190 DATA  25, 32,243,192,134,253,134,142, 32,243,192,134,254,224,  0,240
1200 DATA 186,202,228,253,144,181,173,136,  2,141, 61,  3,173, 60,  3,133
1210 DATA  20,173, 61,  3,133, 21,166,142,240, 12,169, 40, 24,101, 20,133
1220 DATA  20,144,  2,230, 21,202,208,242, 32,  5,193, 32,228,255,240,251
1230 DATA 141, 63,  3, 32,  5,193,173, 63,  3,201,133,208, 31,165,142, 56
1240 DATA 229,141,133,142,201,240,176,  4,197,253,176, 47,165,140,208,  6
1250 DATA 165,253,133,142, 16, 37,165,254,133,142, 16, 31,201,136,208, 27
1260 DATA 165,142, 24,101,141,133,142,197,254,240, 16,144, 14,165,140,208
1270 DATA   6,165,254,133,142, 16,  4,165,253,133,142,173, 63,  3,201, 13
1280 DATA 240,  3, 76, 92,192,165,139,240,  3, 32,  5,193,165,142, 56,229
1290 DATA 253,160,  0,200, 56,229,141, 16,250,169,  0,108,  5,  0,162, 14
1300 DATA  76, 55,164,141, 63,  3, 32,253,174, 32,158,183,236, 63,  3,176
1310 DATA 237,173, 63,  3, 96,172, 62,  3,177, 20, 73,128,145, 20,136, 16
1320 DATA 247,96
```

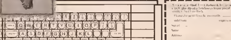
```
c03f  a9 17     lda    #$17
c041  20 f3 c0  jsr    getval          ;what is ystart?
c044  86 fd     stx    ystart
c046  86 8e     stx    row
c048  20 f3 c0  jsr    getval          ;what is yend?
c04b  86 fe     stx    yend
c04d  e0 00     cpx    #$00
c04f  f0 6a     beq    badnum
c051  ca        dex                    ;is yend bigger than ystart?
c052  e4 fd     cpx    ystart
c054  90 65     bcc    badnum
c056  ad 88 02  lda    hibase
c059  8d 3d 03  sta    posn+1
c05c            ;
c05c            ;main program loop.
c05c            ;
c05c  ad 3c 03  loop   lda posn        ;find menu position.
c05f  85 14     sta    frow
c061  ad 3d 03  lda    posn+1
c064  85 15     sta    frow+1
c066  a6 8e     ldx    row             ;move to correct row.
c068  f0 0c     beq    lpend
c06a  a9 28     calclp lda #$28        ;move down by one row.
c06c  18        clc
c06d  65 14     adc    frow
c06f  85 14     sta    frow
c071  90 02     bcc    clcend
c073  e6 15     inc    frow+1
c075  ca        clcend dex             ;..until at correct row.
c076  d0 f2     lpend  bne calclp
c078  20 05 c1  jsr    change          ;reverse current row
c07b  20 e4 ff  getchr jsr getin       ;find a command key.
c07e  f0 fb     beq    getchr
c080  8d 3f 03  sta    key
c083  20 05 c1  jsr    change          ;restore current row.
c086            ;
c086  ad 3f 03  lda    key             ;test command key.
c089  c9 85     cmp    #$85            ;is it f1?
c08b  d0 1f     bne    notup
c08d  a5 8e     lda    row             ;move up one row.
c08f  38        sec
c090  e5 8b     sbc    skip
c092  85 8e     sta    row
c094  c9 f0     cmp    #$f0
c096  b0 04     bcs    chkwrp
c098  c5 fd     cmp    ystart          ;past the top?
c09a  b0 2f     bcs    keydwn
c09c  a5 8c     chkwrp lda wrap        ;yes, so wrap or not?
c09e  d0 06     bne    wrapup
c0a0  a5 fd     lda    ystart          ;no wrap, so move to top row.
c0a2  85 8e     sta    row
c0a4  10 25     bpl    keydwn
c0a6  a5 fe     wrapup lda yend        ;wrap, so move to bottom.
c0a8  85 8e     sta    row
c0aa  10 1f     bpl    keydwn
c0ac            ;
c0ac  c9 88     notup  cmp #$88        ;is command key f7?
c0ae  d0 1b     bne    keydwn
c0b0  a5 8e     lda    row             ;move down one row.
c0b2  18        clc
c0b3  65 8b     adc    skip
c0b5  85 8e     sta    row
c0b7  c5 fe     cmp    yend            ;past bottom?
c0b9  f0 10     beq    keydwn
c0bb  90 0e     bcc    keydwn
c0bd  a5 8c     lda    wrap            ;yes, is there wrap?
c0bf  d0 06     bne    wrapdn
c0c1  a5 fe     lda    yend            ;no, so move to bottom.
c0c3  85 8e     sta    row
c0c5  10 04     bpl    keydwn
c0c7  a5 fd     wrapdn lda ystart      ;move to top.
c0c9  85 8e     sta    row
c0cb            ;
c0cb  ad 3f 03  keydwn lda key         ;end of movement.
c0ce  c9 0d     cmp    #$0d            ;is it end of selection?
c0d0  f0 03     beq    exit
c0d2  4c 5c c0  jmp    loop
c0d5            ;
c0d5  a5 8d     exit   lda retain      ;keep highlight?
c0d7  f0 03     beq    norstn
c0d9  20 05 c1  jsr    change
c0dc            ;
c0dc  a5 8e     norstn lda row         ;calculate return value.
c0de  38        sec
c0df  e5 fd     sbc    ystart
c0e1  a0 00     ldy    #$00
c0e3  c8        rsloop iny
c0e4  38        sec
c0e5  e5 8b     sbc    skip
c0e7  10 fa     bpl    rsloop
c0e9  a9 00     lda    #$00
c0eb  6c 05 00  jmp    ($0005)
```

```
c0ee              ;
c0ee              ;
c0ee              ;error routine.
c0ee              ;
c0ee  a2 0e       badval ldx #$0e        ;show illegal value error.
c0f0  4c 37 e4    jmp    error
c0f3              ;
c0f3              ;find next value routine.
c0f3              ;
c0f3  8d 3f 03    getval sta temp        ;get value, cannot exceed a
c0f6  20 fd ae    jsr    tstcom
c0f9  20 9e b7    jsr    getbyt          ;get value in range 0-255.
c0fc  ec 3f 03    cpx    temp
c0ff  b0 ed       bcs    badval
c101  ad 3f 03    lda    temp
c104  60          rts
c105              ;
c105              ;reverse characters on screen.
c105              ;
c105  ac 3e 03    change ldy width
c108  b1 14       chloop lda (from),y
c10a  49 80       eor    #%10000000
c10c  91 14       sta    (from),y
c10e  88          dey
c10f  10 f7       bpl    chloop
c111  60          rts
c112              ;
c112              .end

errors = 00000

symbol table

symbol value
 badnum  c00b   badval  c0ee   calclp  c06a   change  c105
 chkwrp  c09c   chloop  c108   clcend  c075   error   e437
 exit    c0d5   from    0014   getbyt  b79e   getchr  c07b
 getin   ffe4   getval  c0f3   hibase  0288   init    c000
 key     033f   keydon  c0cb   loop    c05c   ipens   c07a
 noretn  c0dc   notup   c0ac   oman    033c   retain  008b
 row     008e   reloop  c0e3   skip    008e   start   c00e
 tymb    033f   tstcom  aefd   usr     0311   width   033e
 wrap    008c   wrapdn  c0c7   wrapup  c0ae   xend    00fc
 xstart  00fb   yend    00fe   ystart  00fd
```

Open Forum

Open Forum is for you to publish your programs and ideas. Take care that the listings you send in are all bug-free. Your documentation should start with a general description of the program and what it does and then give some detail of how the program is constructed.

Revcounter

on Spectrum

This program simulates a car — the idea of the game is to accelerate to 90 M.P.H. in the least possible revs. To help you, two gears are built into the car. If you reach 90 your driving skill will be rated.

Program notes

1-21	Program start
22-48	Variables start
900-1100	Screen set up.
1113-3000	Game working out.
2999-4080	End reports
8000-8080	New game option
8080-8100	Introduction and instruction

To save the program *Save* "REVCOUNTER" *Line* 1.

```
   1 CLS : FLASH 0: CLS : INK 6:
 BRIGHT 1: PAPER 0: BORDER 0: CL
S : PRINT AT 16,0; FLASH 1;"STOP
 THE TAPE": FOR Z=0 TO 350: NEXT
 Z: INK 5: PAPER 0: BRIGHT 1: FL
ASH 0: PAPER 0: BORDER 0: CLS :
PRINT "REVCOUNTER  D.WESTBY 1984"
   2 FOR A=0 TO 350: NEXT A
   3 CLS
   4 PAUSE 50
  10 REM D.WESTBY 1984
  15 LET G=1
  20 REM REVCOUNTER
  21 GO TO 8000
  22 INK 5: PAPER 0: BORDER 0: B
RIGHT 1: FLASH 0: CLS
  24 REM VARIABLES SET UP
  25 LET G=0
  30 LET RPM=0
  40 LET MPH=0
 900 REM DISPLAY SET UP
 999 CIRCLE 120,110,20
1000 CIRCLE 60,50,40
1010 CIRCLE 166,50,46
1020 PRINT AT 11,10;"0"
1030 PRINT AT 15,13;"30"
1040 PRINT AT 10,10;"60"
1050 PRINT AT 15,6;"90"
1060 PRINT AT 11,20;"0"
1070 PRINT AT 15,23;"20"
1080 PRINT AT 10,25;"40"
1090 PRINT AT 15,15;"60"
1100 PRINT AT 10,9;"MPH"
1110 PRINT AT 13,18;"RPM",AT 14,
18;"*100"
1113 REM MAIN PART
1115 IF RPM<0 THEN FOR N=0 TO 75
: NEXT N: CLS : PRINT "THE CAR C
ONKED OUT BECAUSE YOU  CHANGED G
EAR TOO EARLY!!": FOR A=0 TO 350
: NEXT A: GO TO 4040
1117 FOR Z=-40 TO +50
1120 IF G=1 THEN PRINT AT 8,13;
INK 7; INVERSE 1; PAPER 9;"1"
1125 PRINT AT 0,9;"SPEED ";MPH;A
T 0,11;"REVS PER MIN ";RPM*100
 IF INKEY$="4" THEN LET RPM=RPM+4
: BEEP .05,2
1126 PRINT AT 6,13;"GEAR"
1127 PRINT AT 8,13;"1";AT 8,16;
"2";AT 7,15;"0": IF G=0 THEN PRIN
T AT 7,15; INK 7; INVERSE 1;"0"
1128 IF G=1 THEN PRINT AT 8,13;
INK 7; INVERSE 1;"1"
1129 IF G=2 THEN PRINT AT 8,16;
INK 7; INVERSE 1;"2"
1130 IF RPM=0 THEN PRINT AT 11,2
0; INVERSE 1; INK 7;"0"
1140 IF INKEY$="1" THEN LET G=1
: BEEP .06,2
1146 IF INKEY$="2" THEN LET RPM=
RPM-35: LET G=2: BEEP .05,4
1150 IF INKEY$="q" THEN LET RPM=
RPM+5.25: BEEP .05,2
1155 IF INKEY$="q" THEN LET MPH=
MPH+4
1158 PRINT AT 0,6;MPH
1160 IF RPM=20 THEN PRINT AT 10,
23; INK 7; INVERSE 1;"20"
1170 IF MPH=30 THEN PRINT INK 7;
 INVERSE 1;AT 15,13;"30"
1175 IF MPH=90 OR MPH>90 THEN FO
R N=0 TO 200: NEXT N: GO TO 3000
1176 PRINT AT 0,6;MPH
1180 IF MPH=60 THEN PRINT AT 10,
10; INK 7; INVERSE 1;"60"
1190 IF RPM=40 THEN PRINT AT 10,
20; INK 7; INVERSE 1;"40"
1200 IF MPH=90 THEN GO TO 3000
1210 IF RPM=56 OR RPM>56 THEN PR
INT AT 15,6; INVERSE 1; INK 7;"6
0": PRINT AT 4,7; INK 6; FLASH 1
;"PLAY ABOUT WITH THE GEARS"
1215 IF RPM<56 THEN PRINT AT 4,0
```

Microradio

GW6JJN

Clickety-click

This column tries to keep up with the latest in computer and communications technology. This none-too-easy task will become much more difficult when new legislation and the privatisation of British Telecom come into being very soon.

Some of you are already interested in packet radio and data packet switching techniques. Commercial systems like BT and Mercury who use these systems already on a vast scale have taken the technology a long way towards the situation where it is now possible to transmit, accurately, vast amounts of data almost anywhere in the world. Packet switching techniques make these systems fully interactive so that just as you can play a computer game in real time with an opponent across the globe linked by a satellite, so can hundreds of people be involved in an interactive situation or game within the UK.

If this were just the Prestel system, that would be one thing but it has already gone much further, particularly in the United States. There, it is possible to do all your shopping, message sending, financial dealing, responding to your favourite soap opera and even your daily work without even getting out of bed.

I suppose that there are some who may think that that sounds like heaven, but there's no accounting for taste.

Back in 1982, the British government agreed in principle to a new, perhaps inevitable idea, called Value Added Networks or VANs for short. What this means is that following privatisation, data networks like Mercury and British Telecom will have competition from third party carriers who will be licensed to carry traffic as long as there is added value, or something special about the traffic BT and Mercury will still be the prime normal carriers but the systems with a VANs licence will be operating the 'special' systems. Some are already in existence carrying data for the Midland Bank and various Building Societies among others.

Proposed VANs systems involve the interactive use of data systems for the public, some in conjunction with cable television, which will provide instant opinion polls in which millions of people can take part from their own homes. Imagine the interminable panel games on the cable networks with a million or so contestants.

One idea for a VAN that has already been floated is the uniquely British game of *Bingo*. Packet switching operates so quickly that Bingo is believed to be feasible on a grand scale. Recent Bingo games in national newspapers have shown that there need be no limit to the number of players. It is hard to say where it might end ... was that clickety-click or unlucky for some ...?

Ray Berry GW6JJN

This series of articles is designed for radio and microcomputer enthusiasts alike. If you have any queries that you want answered, hints and tips to share or topics that you would like to see covered, write to Ray Berry, Microradio, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 3LD.

```
1230 PRINT AT 0,0,MPH
2000 GO TO 1115
2999 REM END REPORTS
3000 CLS : PRINT "YOU REACHED ";MPH
3001 PRINT 'YOUR REVS WERE ",RPM*100
3002 PRINT INVERSE 1, D.WESTBY REV COUNTING
4000 FOR A=0 TO 200: NEXT A
4020 IF RPM=40 OR RPM>40 AND RPM<70 THEN PRINT "YOU REVS WERE AVERAGE SO YOU AREAN AVERAGE DRIVER"
4025 IF RPM=65 OR RPM>66 THEN PRINT 'YOU ARE A PATHETIC DRIVER.
     YOUR REVS WERE FAR TOO HIGH
     I ADVISE YOU TO TRY AGAIN
4030 IF RPM<30 OR RPM=39 THEN PRINT "EXCELLENT!
     YOU KEPT THE REVS DOWN SUPERLY WHICH MEANS YOU ARE A TOP CLASS DRIVER.
     WELL DONE!!
4050 FOR N=0 TO 500: NEXT N
5005 REM NEW GAME?
5010 CLS : PRINT AT 9,0;"FOR ANOTHER GAME INPUT 1 OR TO STOP THEN INPUT 2!!"
5020 INPUT "YOUR DECISION",Q
5030 IF Q=1 THEN CLS : GO TO 83
5040 IF Q=2 THEN STOP
5050 IF Q>2 OR Q<1 THEN GO TO 5010
6000 INK 6: LET A$="REVCOUNTER": PRINT AT 21,11,A$: FOR F=1 TO 10: FOR G=20 TO 0 STEP -1: BEEP .004,F*2+20: PRINT AT G,F+10,A$(F): PRINT AT G+1,F+10," ": NEXT G: NEXT F
6005 FOR A=0 TO 21: PRINT AT A,0;"*": PRINT AT A,31;"*": BEEP .01,A: NEXT A: FOR B=0 TO 31: PRINT AT 0,B;"*": PRINT AT 21,B;"*": BEEP .01,B: NEXT B
6010 FOR F=0 TO 30: BEEP .04,3: PRINT INK 5;AT 2,F;"DAVE WESTBY": NEXT F: PRINT AT 2,31;"*"
6013 PRINT AT 10,5; INK 6; "FOR THE 48K ZX SPECTRUM"
6015 PRINT AT 3,0;"*": PRINT AT 4,0;"*": PRINT AT 3,0;"*"
6020 PRINT AT 10,11; INK 7;"PRESENTS": FOR N=0 TO 59: BEEP .025,N: NEXT N: FOR N=59 TO 0 STEP -1: BEEP .005,N: NEXT N
6030 FOR N=0 TO 175: NEXT N
6040 BEEP .1,0: BEEP .1,4: BEEP .1,1: BEEP .1,6: BEEP .1,8
6050 CLS : PRINT INK 6;"REVCOUNTER": PRINT
6060 PAUSE 30: PRINT AT 3,3,"Revcounter is a simulation of a car. The idea of the game is to accellerate to 80 MPH in the least possible revs."
9070 PRINT : INK 6: PRINT "To control the car you use the following keys -": PRINT : PRINT INK 7;"To accellerate press "; INVERSE 1;"0": PRINT : PRINT "To change into first gear press "; INVERSE 1;AT 15,14;"1": PRINT : PRINT "To change into second gear press "; INVERSE 1;AT 18,14;"2"
9080 PRINT AT 21,0; FLASH 1;"HIT SPACE TO CONTINUE!"
9090 IF INKEY$=" " THEN GO TO 82
9100 GO TO 9090
```

Revcounter
by David Westby

Arcade Avenue



Bird bait

Superior Software of Leeds have lived up to their name and released a couple of high quality, if unoriginal, arcade copies for the BBC *Star Striker* is a version of the post-Galaxion space shoot-em-up usually called *Moon Cresta*. The colourful aliens burble menacingly, swirl, split into two when shot and even fly up beneath you just when you thought it was safe to stop dodging *Asteroids* and fireballs add to the difficulty but as a consolation careful docking of the three-part space ship can eventually provide you with a mega-craft capable of firing several shots at once and wiping out aliens at a cracking rate

Mr Wiz is an almost perfect copy of *Mr Do* — the oddly named but popular arcade game where the central character, who looks a little like Andy Pandy in the original, digs a tunnel to eat cherries Chasing monsters can be squashed by dropping apples onto them or by throwing crystal balls. Bright colours, attractive animation and continuous music (fortunately a feature that is becoming more common on machines like the BBC and CBM 64 that have excellent sound facilities) make this game a winner

Mr Do has since reappeared in the arcades in two further arcade games. In one the name of which escapes me, he has to climb all over a carnival roller coaster avoiding the cars The second, called *Mr Do's Castle*, is probably my favourite arcade game at the moment with cartoon-quality graphics, marvellous monsters and tremendous bouncy music If Superior ever produce a good enough version of that I may have to find £400 for my own BBC

For the 64 there are a couple of interesting new games. Commodore themselves have released the official version of Balley's *Lazarian* — not a very successful game in this country, in fact I have only ever seen it once. This is nevertheless a very good copy It is a three-screen game where first you must fly around a planet shooting at squirly things in the middle. When you hit them they fly out into space and chase you around. On the second screen you have to fly through some caverns avoiding swarms of nasty flying things and on the third you have a chance to blast away at a completely over the top *Phoenix*-like mothership

Microdeal are now, sensibly, avoiding over-reliance on one micro by releasing games for the Commodore *Arena 3000* is an interesting development despite being another version of the much-copied game *Robotron*. The company have cleverly allowed the option of using both joysticks — one to control the movement of your android and the other to control the direction of fire, just as in the original game. True *Robotron* fans will know that this is essential for achieving high scores as well as recreating the real feel of the game. However, in case you have never tried using a free-standing joystick with one hand, well let me tell you — you haven't missed much. You must fix them down to get the full benefit. (Incidentally *Robotron* is one of the few original arcade games that have the TV screen the 'right way up, which helps with the conversion to home computers.)

Finally, whilst on the subject of Microdeal, you may remember a few weeks ago I mentioned their new Dragon game written by Tom Mix called *Buzzard Bait*. Well, having finally seen it load, I can reveal that it is a good version of the game *Joust* where you flap around ledges on giant buzzards trying to kill the enemy with your lance by being higher than they are at the time of collision. Needless to say, the enemy have lances as well, and there's an awful lot of them at any one time

Tony Kendle

The Arcade Corner is a new section for anyone who enjoys playing arcade games. If you have any comments, from playing tips on difficult games or programs you'd particularly like to praise (or blame!) then write to Tony Kendle, Arcade Avenue, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2R 3LD

Binary

on ZX81

This short program, which will run on a 1K machine, will convert decimal numbers to binary representation, and vice versa.

The response is almost instantaneous in *Fast* mode, and by converting decimal numbers on a "trial and error" basis, you will soon begin to see how binary numbers are built up from powers of 2.

The program itself is written in two distinct sections. The main program, written in Basic, deals with the screen display and the input of numbers, and it calls the appropriate machine code subroutine to carry out the conversion. The machine code section, held in the Rem statement at line 1, is 48 bytes long and comprises three short subroutines

1 Address 16514 to 16527 tests bits 0 to 7 of A$(2) the single byte representing the decimal number to be converted, and places a "1" in the appropriate position in A$(3 to 10)

2 Address 16528 to 16543 checks in turn each of the 8 numbers of A$ (3 to 10), which represents the binary number to be converted. If A$(X) is a "1" then bit X of A$(2) is set to "1" otherwise bit X remains a "0"

3 Address 16544 to 16561 is a subroutine which is called by each of the previous subroutines. This finds where A$ is lurking in the variables area by using the system variable DEST (Remember that although strings and other variables get shunted around last referred to in DEST) The two register pairs HL and DE are pointed at A$(2) and A$(10) respectively and the counter BC is set to 8 (the number of bits in a byte)

Thus, after converting binary to decimal, the bit pattern of A$(2) is a duplicate of the string A$(3 to 10) and vice versa for decimal to binary conversion.

1 Type in the listing shown in Fig 1
2 *Run*, and enter the hex codes on the right of Fig 3, either as single bytes (eg, CD) or as instructions (eg, CDA040)
3 Delete lines 10-80
4 Type in lines 15 to 260 in Fig 2
5 *Save* the program before *Running*

```
1 REM ................................
10 LET N=0
20 INPUT A$
30 LET X=16514+N
40 LET Y=16*(CODE A$(1)-28)+CODE A$(2)-28
50 POKE X,Y
60 LET N=N+1
70 IF LEN A$=2 THEN GOTO 20
75 LET A$=A$(3 TO )
80 GOTO 50
```

FIG 1

```
1 REM LN RANDACS 70* ,.ACS ! PLOT TAN LN RND RETURN 1* ACS LEN ACS ( POKE TAN Y1E:RND7 FAST 10 "^ LPRINT * STR
10 CLS
20 PRINT "1  BIN TO DEC ,,"2. DEC TO BIN"
30 INPUT A
35 CLS
40 GOTO 100*(A=1)+200*(A=2)
100 PRINT "KEY BIN. NO.(M FOR MENU)"
105 LET A$=
110 INPUT A$(3 TO 10)
115 IF A$(3)="M" THEN GOTO 10
120 LET A$(1)=CHR$ USR 16528
130 PRINT A$(3 TO 10),CODE A$(2)
140 GOTO 105
200 PRINT "KEY DEC NO.255 MAX (M FOR MENU)"
205 LET A$="0000000000"
210 INPUT D$
215 IF D$="M" THEN GOTO 10
220 LET A$(2)=CHR$ VAL D$
230 LET A$(1)=CHR$ USR 16514
240 PRINT CODE A$(2),A$(3 TO 10)
260 GOTO CODE LN
```

FIG.2

```
4082 CALL 40A0          CD A0 40
4085 BIT 0,(HL)         CB 46
4087 JR Z,1             28 01
4089 LD (DE),A          12
408A DEC DE             1B
408B RRC (HL)           CB 0E
408D DJNZ -10           10 F6
408F RET                C9
4090 CALL 40A0          CD A0 40
4093 LD A,(DE)          1A
4094 CP 1D              FE 1D
4096 JR NZ,2            20 02
4098 SET 0,(HL)         CB C6
409A DEC DE             1B
409B RRC (HL)           CB 0E
409D DJNZ -12           10 F4
409F RET                C9
40A0 LD A,1D            3E 1D
40A2 LD HL,(4010)       2A 10 40
40A5 INC HL             23
40A6 PUSH HL            E5
40A7 LD DE,09           11 09 00
40AA ADD HL,DE          19
40AB LD D,H             54
40AC LD E,L             5D
40AD POP HL             E1
40AE LD BC,0008         01 08 00
40B1 RET                C9
```

FIG.3

Binary
by Stuart Clarke

Baud Walk

The password

News first as usual on the Baud Walk. The biggest concerns IBM and BT's joint announcement to develop standard protocols for interconnection between networks. This is obviously going to make life easier in years to come for us networkers. On the political front, it will stop IBM — hopefully — steam-rollering its own network architecture in the UK to the detriment of all others

Another piece of good news, is that Prestel, the viewdata service, plans to launch its own educational service for micro users this January They are about to go the rounds of secondary education in the UK offering cheap connect time, subscriptions and a variety of hardware and software The major problem I can see, perhaps, with this service is the position of the telephone in schools and its possible abuse

I thought it was worth describing the special user instructions when accessing bulletin boards The first few calls can be very difficult and distressing at times until you eventually get the hang of them.

Bulletin boards normally require a 300/300 baud modem — although 1200/75 baud is increasing in popularity A full list appeared in the networking feature in the August 2 issue

Information about software for the boards can be obtained from the association of Free Public Access Systems, 421 Endike Lane, Hull. If you do write make sure you send an SAE and describe which configuration of micro and modem you have.

When logging on to these boards, first listen for the carrier tone Switch your modem on and type *C/R* (carriage return) or *COM C/R* The screen will normally clear and ask you to type in your call name That registers with the system operating software (sysops), so stick to one call sign for subsequent calls

Some systems will ask for a password. It is the system's way often of identifying what type of terminal you are The answerback should be cbbs in lower case or toos. Typing *Help* or *F* for re-format at this stage may be your only way out.

Bulletin boards will then display your menu options, which will vary according to the degree of complexity and services of the board.

The most common are as follows

R — Read messages left on the board
Q — Quick scan of messages currently on
K — Kill message
M — Electronic mail section
L — Leave message on board
S — Special interest group area
B — Bulletins
I — Information request
T — Elapsed time
D — Down-load files
Hash — Upload files
G — Goodbye, log-off
F — Reconfigure terminal
C — Chat to sysops
U — User-log of other callers

Keep this list handy until you've got the hang of it The only real way to learn, however, is get that dial going

Robin Wilkinson

Baud Walk is a new weekly column with news on networking, data nodes reviews of modems and software and points of contact for information.

Any readers with experience of networking are asked to send their experiences or news of services to Robin Wilkinson, Baud Walk *Popular Computing Weekly* 12-13 Little Newport Street, London WC2R 3LD.

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Tony Bridge's Adventure Corner

Follow the hare

Dear Tony,

Please help! I know it's a little early for you to have tried Hareraiser Prelude, *but having recently received my copy for my Commodore 64 (after a month of impatient waiting!), I find all my feelings of eager anticipation suddenly turned to shock and desolation.*

On loading you are given a rhyme about the origins of the Hare and told that keys Z,X and the cursor keys are used for movement. These keys do not follow the N,E,S and W that I had assumed they would, it is therefore difficult to record where you've been. Each location is graphically similar, the scene consisting of grass, sky, clouds, sun and trees. The text consists of such gems as. Use your brain, Can you see the wood for the trees; Early bird catches the worm — to give you a few examples. In a few locations a Hare runs from right or left to the centre of the screen and then disappears. No inputs seem to be required.

'So, Tony, please, what on earth am I meant to be doing. Do I have to follow the Hare? Do I make words from the clues? Help! Mrs Gillian Slade, 73 Amethyst Rd, Christchurch, Dorset BH23 3ED

Hareraiser is the adventure from Haresoft which offers the prize of the golden jewelled Hare of Masquerade, or £30,000. While I haven't yet seen it, let alone tried it, we have had a couple of letters from people less than satisfied with the game.

Masquerade is the book of puzzles that had thousands of hopeful people digging up half of the British Isles in the quest for the the Golden Hare, and this game, for several "popular micros", promises the same sort of thing for the more home-bound of us. Gillian is stuck in the first part, the Prelude, and the finale is on sale soon.

"Dear Tony, here is a list of adventures I have completed. If anyone out there needs a clue to any of them, they can write to me, including a SAE, and I'll be happy to help' Colossal Adventure *(Level 9)* *10/10 — what can I say!* Magic Mountain *(Phipps)* *7/10 — good for beginners,* Greedy Gulch *(Phipps)* *6/10 — beginners only.* Pharoah's Tomb *(Phipps again)* *6/10 — reasonable.* Knight's Quest *(Phipps)* *10/10 — not for beginners!* Colditz *(Phipps* *7/10 — not as difficult as it looks,* Velnor's Lair *(Quicksilva)* *5/10 — I finished this in three days,* Quest *Hewson)* *10/10 — no comment!* The Hobbit *Melbourne House)* *8/10 — Lower marks because I felt the run home with the treasure was a little flat.* Espionage Island *(Arctic)* *8/10 — reasonable*

"Now, can anyone help me with two problems — In Artic's Golden Apple, *how do I get the emeralds from the glass case in the red room, and in Incentive's* Mountains of Ket, *how do I get past the skull and the dragon?" Karen Tyers 19 Pams Way, West Ewell, Surrey KT19 0HA.*

I can help you with these two, Karen, to get the emerald from the glass case fo *Golden Apple*, just try *Singing!* As for the skull in *Ket*, you must wear a certain combination of articles to get past — and to avoid the dragon, try *Pouring* the oil in the warm room.

Douglas Smith writes to me from Glasgow, asking me to suggest adventures for the beginner on the Commodore 64, while Robert Hardie writes from Sydney in Australia, asking for a list of good novices' programs for the BBC. Several American users have also sent pleas for Basic adventures to run on their Timex 2000s

The first adventure I would recommend to anyone remotely interested in the art, is a version of the original *Colossal Adventure*. Melbourne House's versions for the BBC, Commodore and Spectrum is as good as any — although Level 9's similarly named *Colossal adventure* is available for these and many other micros, and has the advantage of 70 extra locations at the end.

To get an easier introduction to the techniques of adventuring, and have a lot of fun on the way, try Melbourne Houses's masterpiece, *The Hobbit*. This features many innovative ideas, not the least of which is "animaction" — this refers to the habit of the other characters in the adventure to go wandering about getting on with their own lives, while you are struggling with the various problems (just don't come back to me in a couple of months, asking for help in the Goblin's Dungeon!).

Graphic adventures are well-liked by many adventurers, but, unfortunately, there are not many for the BBC. Some of the best though again, not necessarily the easiest, are from Epic Software. You'll find this company at 11 Edendale Road, Melton Mowbray, Leicestershire LE13 0EW. *Castle Frankenstein* is actually text-only, boasting 220 locations and 28 000 characters of text — but *The Wheel of Fortune*, Epic's newest Epic, is text and graphics.

The grand Elf can't leave the good old Beeb without mention of the grandaddy of all BBC adventure-writers, Acornsoft. Games like *Philosopher's Quest*, *Countdown to Doom*, *Castle of Riddles* and *Sphinx Adventure* have endeared themselves to countless (almost!) Beeb'ers — and the newest adventure, *Kingdom of Hail*, seems set to become yet another classic

While on the subject of BBC adventures, it may be worth looking at a couple of new releases from Micrograf (of 120 Oxford Road, Reading, Berks), who, with *Vampire Castle* and *Flint's Gold*, have a pair of good introductory adventures

As for the Commodore — there are many adventures available for the machine from the States, including the Infocom series, which are rather state-of-the-art, and thus may prove rather frustrating for the beginner. Companies like Datasoft, Spinnaker and Adventure International all release a lot of software for the Commodore, including adventures of all sorts. The latter software house is the brainchild of Scott Adams, whose name is synonomous with adventure programs — try *Pirate Adventure Adventureland*, and *The Count* as good introductions, leaving some of the others for later

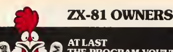
Finally Basic adventures for the Spectrum — I'm afraid that there are not many! The market as it stands at the moment, demands fast responses to a variety of input, and that can only be achieved by machine-coded programs. The only two that spring to mind readily are *Treasure of Maathos*, that I mentioned in Vol 3 No 33, and *Velnor's Lair*, from Quicksilva. This one is written by Derek Brewster, a well-known personality in the software world. This was his first (I believe) commercial enterprise, largely ignored until he became more famous for programs like *Lunar Crabs* and *Codename MAT*

I'll leave you now with a couple of not often-mentioned adventures. Brett Marl, from Chester, writes: *"Please help me with* Ghost Town, *from* Virgin. *In three months, I have still not found the combination to the Safe"*

And, from Richard Alexander of London, some hints for *Denis Through the Looking Glass*, from Applications Software. *"To get out of No. 10* [a problem that vexes many people. TB] try *thus* [refer to the list of clues below] 7,7,3,2 14,7,18,12,16 16,9 — and *after every 10th move, you should* 9 *Other hints include* 5,19 *three times before going* 14 *out of the* 10 — *don't* 4 *the* 13 *in the* 20, and *finally*, 6 *needs his* 1,21,8,11!

1 Eyebrows 2 Scrub 3 Hide 4 Kiss 5 Kiss 6 Healey 7 North 8 By 9 Drink 10 Window 11 Lawnmower 12 Put 13 Frog 14 East 15 Flask 16 Look 17 Needs 18 Get 19 Sheet 20 Garden 21 Trimmed

This series of articles is designed for novice and experienced Adventurers alike. Each week Tony Bridge will be looking at different Adventures and advising you on some of the problems and pitfalls you can expect to encounter. So if you have an Adventure you want reviewed, or if you are stuck in an Adventure and cannot progress any further write to Tony Bridge, Adventure Corner, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2R 3LD



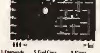








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You have a Rocket Pac to help you (a Vulture on higher levels) but you must rush around the platforms and ladders collecting cans of fuel (legs of lamb with the Vulture) and cursing that weird Bubble. Once you have enough fuel then it's Chocks Away!
Oh . . but don't run out of fuel on the way – otherwise it's . . . SPLASH!

The aim is to collect all the diamonds from the far left hand side of the screen, whilst avoiding the rampant Bubloid. These emerge from the sea and are hell bent on returning to their watery habitat with you in tow. Sooner or later you are going to end up in the drink – The idea is to make it later!

By belting round the system of platforms and ladders, cleverly avoiding the Bubloid, you collect the fuel cans which appear in random positions until you consider that your fuel gauge indicates sufficient in the tank. Now you can go and collect your rocket. With the rocket pack strapped to your back you can fly across the expanse of sea to collect the diamonds . . . but don't run out of fuel or your rocket pack will simply disappear and you will wind up in the drink!

There are six stages with six different platform layouts. On stages 1-3 the Bubloid which floats in front of the platforms with uncanny ease gets an ever increasing ability to home in on your position, making the task of staying alive more demanding with each stage. On stages 4-6 you once again start with the easiest Bubloid (which is a blessed relief!) but the fuel cans are replaced by legs of lamb which you must collect to feed your vulture, and once it has enough energy (or you think it has!) you must flap across the water on its back to collect the diamonds.

Extra men are awarded for every 10 000 points – but ONLY once you have collected all the diamonds and so completed each particular stage.

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Peek & Poke



Acoustic coupler

A Bennett of Whitehaven, Cumbria writes:

Q **I am seriously thinking of buying a modem, but the snag is one telephone is not very new. The plug is permanently fixed to the wall, and an acoustic coupler would be no good either as the computer is rather a long distance from the phone. Could you please advise me on what to do?**

A If you do not have one of the new BT jack plug sockets (which cost about £25) then you will have to use an acoustic coupler. Distance from the telephone is a problem, but only if you were upstairs and the phone was not. Acoustic modems are not as reliable as other types of modem, but they are still very usable. My advice to you is to consult your local BT Sales Engineer for advice on how to proceed. The service will cost you nothing and you are certain of an expert on-the-spot opinion.

Disabled keys

C Wright of Lewton, Suffolk writes:

Q **I own a Vic 20 and would like to know how to disable the *Run/Stop* key. I have heard that *Poking* 37150,2 and using an *Input* statement will disable the *Run/Stop* and *Restore* keys, but that the only way to disable *Run/Stop* is to program in machine code. Also, what do the symbols < and > stand for? My speech synthesiser pronounces them as "Power", but I can't understand what they are there for. Just seems a waste of good keyboard space to me.**

A In order to disable the *Run/Stop* key you should *Poke* 788,184. The *Poke* you mention only disables the *Restore* key. To disable both the *Run/Stop* and *Restore* keys you should *Poke* 808,100. The two characters you mention are normally used for cursor control; try experimenting with them when you have a program listed on the screen and you might find out how useful they can be.

Basic learning

P G Rix of Abergavenny, Gwent writes:

Q **I have recently purchased a BBC B, for both personal and business use. However, the nearest I have ever been to a computer before this is the other side of a shop window.**

Can you suggest any courses that people such as myself (I am a hotelier) could attend, where we could spend a week or so learning the basics (pardon the pun).

A As you are a hotelier can I suggest Butlin's. I know that may seem a little strange but the course in their Skegness camp was highly recommended by Mr Harding in Vol 3 No 24.

The courses run for a week and details are obtainable from Butlin's in Skegness.

Computer education

Mohamed Inaam Al Sheraz of Kuwait, writes:

Q **These days it is commonly heard that computers are in use in schools for educational purposes, especially the BBC computer.**

I wish to know how computers and computer-aided learning and teaching can help the students in their normal studies, and what kind of software is used for this purpose?

A The biggest impact that computers have made in the educational field has occurred in the primary schools. There are many reasons that the secondary schools have not made as much of computers in the classrooms, the main one being that they are constrained by the formal requirements of exam syllabuses.

Some teachers use computers as a way of interesting young children in the 'boring chores' of spelling, simple mathematics, and elementary geography. The computer is seen as a way of coping with the wide range of abilities found in a single class. Most of the software for these (and other) purposes has been produced, either by teachers, or by those closely associated with the teaching profession. Virtually all of the primary school software uses coloured graphics as a means of getting the message across and also as an 'interest grabber'.

Compiler answer

A Fearon of Birmingham writes:

Q **I own a CBM 64. I am writing an adventure game, but I would like my program to be in machine code rather than slow Commodore Basic. I have heard that a compiler might be the answer, can you confirm this? Also, can you tell me how big a Basic program it can compile, as my program will use nearly all the available memory (34-38K). How could I gain access to the hidden memory which is denied the Basic program programmer? Another question, how can I implement my own graphics in machine code in my adventure?**

A A compiler would be the answer, except that as they normally have to reside in memory when the program runs you might well run short of memory. Also, you would be unable to sell your finished program, because of copyright problems. A compiler will take up between 5–10K of memory and will almost certainly place restrictions on you as to what Basic commands you can use, as well as restricting the facilities of the machine.

Whilst I sympathise with your wish for your program to be superfast, it is true to say that adventure games do not need to be very quick. You do need to respond to an input as fast as possible, I agree, but any random events, or movements can take place while you are waiting for the next *Input*. Your only other real alternative is to write in machine code or to use a compiler and look for ways of saving space. One such way would be to use character compression to reduce the amount of memory needed to hold the textual descriptions of locations, etc.

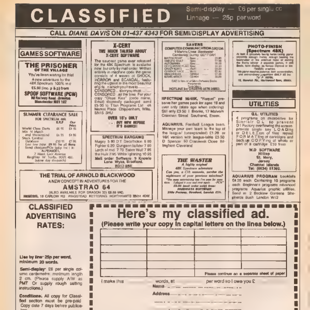
Joystick interface

Paul Stead of Hull writes.

Q **I recently purchased a Dk'Tronics keyboard for my Spectrum and I have found that I cannot find an interface to fix onto the back of it. I wrote to Dk'Tronics and told them of my problem, but I am afraid I did not get a reply. I would be very grateful if you could help me.**

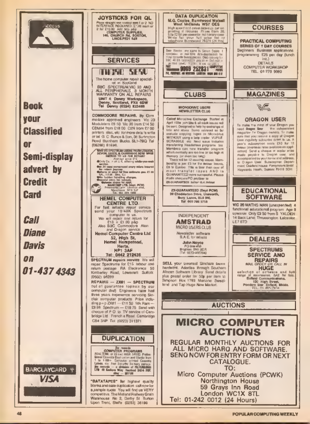
A I am sorry you never received a reply from the manufacturer. The only difficulty in connecting joystick interfaces to this keyboard that I have come across concerns the Sinclair joystick interface. You should be able to connect any other interface that uses the edge connector without any trouble. The ZX printer works quite happily with this keyboard.

Is there anything about your computer you don't understand, and which everyone else seems to take for granted? Whatever your problem *Peek* it to Phil Rogers and every week he will *Poke* back as many answers as he can. The address is *Peek & Poke, PCW*, 12-13 Little Newport Street, London WC2R 3LD



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WANTED 48K SPECTRUM — extras unnecessary Tel 021 742 1449

48K SPECTRUM WANTED BBC model good price paid Tel 0305 053408

OSBOURNE WANTED preferably model II Very good condition Super Brain and also printer — tel Mr Lau — 0203 418938 office hours Kenilworth 0926 55064 eves

SWAP BBC LIGHT pen + s/w for Acornsoft Aviator or sell for £10.00 Tel S Patel 43 Whernside Ashton-under-Lyme Lancs OL6 8NY

WANTED ANY PRINTER with dot addressable graphics and parallel interface for use with TRS-80 Contact Nigel on 0086-33441 after 7pm

SWAP 48K SPECTRUM + Seikosha MKII Graphics Printer + interface + word processor + portable TV + cassette + software for Commodore 64 + cassette + software or will sell 30 Brown Cres Sutton in Ashfield Notts.

EXCHANGE, TWO 1/12m scale model electric racing cars for radio control for CBM 64 s/w Or sell £25 each Prefer against disc or printer Tel Keith on Scunthorpe (0724) 851132

WANTED BBC model B micro swap for Vic 20 + £20 of accessories. 01 952 7464

Diary

Event	Dates	Venue	Admission	Organisers
Electron and BBC Micro User Show	Aug 31-Sept 1 10.00am-5.30pm Sept 2 10.00am-4.00pm	UMIST Manchester	£2.00 adults £1.00 children	Database Publications [illegible]
Games Day 84	Sept 1 10.00am-6.00pm Sept 2 10.00am-5.00pm	Royal Horticultural Society's New Hall, Greycoat St, London SW1	£1.20	Games Workshop [illegible]
Hampshire Computer Fair	Sept 6 11.00am-8.00pm Sept 7 10.00am-5.00pm	Guildhall, Southampton	Trade — free public £2.00	Tastwood Exhibitions [illegible]
Walthamstow 84	Sept 8 10.00am-5.00pm	Main Exhibition Hall, Waltham Forest Technical College, Forest Rd, London E17	£1.00	London Exhibitions and Promotions [illegible]
ZX Microfair	Sept 9 10.00am-6.00pm	Alexandra Palace, London N22	£1.00 adults 50p children (in advance)	ZX Microfairs 01-801 9172
Personal Computer World Show	Sept 19-22 10.00am-7.00pm Sept 23 10.00am-5pm	Olympia 2, Hammersmith Rd, London W14	£3.50	Montbuild Ltd 01-486 1951
Livingston Computer Fair	Oct 6-7 10.00am-5.00pm	Pool Street Ladywell Livingston W Lothian	£1.00 adults 50p children	West Lothian Computer Club [illegible]

MEGA-BIX

In *Paranoid Pete*, Pete is paranoid because of his concern for wheat and the way it is so easily decimated by Mega-Wibbhes. This is agrarian commitment of the highest level.

Pete looks vaguely like one of those Weetabix characters and his job is to dig in the seed which is falling from the harvester spaceship and protect both it and himself by bashing the roving Mega-Wibbhes. There's lots of colour and graphics in the game, but it isn't fundamentally very sophisticated. This is perhaps why Ubik have stressed its appeal to younger players. Simplicity can be a virtue.

If you're five, you may well love the game, if you're 15 you won't be impressed. Technically it's nothing special.

Program	*Paranoid Pete*
Price	*£5.50*
Micro	*Spectrum*
Supplier	*Ubik* *64 Rothwell Road* *Gosforth* *Newcastle upon Tyne* *NE3 1UA*

FOR SCHOOLS

I think, he says sticking his neck out, waiting for it to be chopped off, that *Pilot — Plus/64* is the first appearance of this language on the Commodore 64. In fact, I can't recall having seen another version on any home micro other than the BBC.

Pilot is supposed to be as good a language as Basic for learning with and is particularly suitable for things like tests and other things with a list-like structure.

The booklet you get with the program gives you enough information about the language to enable you to actually do some programming of your own, as opposed to referring you to reference works on the subject.

Although it could be useful for writing things like adventure games, I suspect that mostly this is a package for use in schools rather than for the average punter, hence, partly, the price £28.

Program	*Pilot-Plus/64*
Price	*£28*
Micro	*Commodore 64*
Supplier	*Sigma Press* *5 Alton Road* *Wilmslow* *Cheshire* *SK9 5DY*

GO WEST

An adventure for adventurers and ZX buffs of long standing is *The Quest for the Holy Joystick*. It's text only and Quilled, but with a nice lots in in-jokes and references to the flotsam and jetsam of computer life.

One of the first locations you'll come to is the ZX Computer Fair at Alexandra Palace at which you will find such obscure reference points as 'The Sunshine stand' and 'Tony Bridge' (who he?). Here, too, you will discover one of my favourite bits, 'West there is a very famous adventure' it says. You go west and well... buy it for yourself.

Virtually every adventure you can think of, including *Denis* and *The Hobbit*, appears at some point in the game and personally I heaved a sigh of relief for a game, particularly an adventure, that does not take itself too seriously. Not only that, but it seems to function perfectly well as an adventure, too. After an hour I was still none the wiser about the plot but quite entertained. Excellent for those who don't like to take adventuring too seriously.

Program	*The Quest for the Holy Joystick*
Price	*£4.95*
Micro	*Spectrum*
Supplier	*Delta 4 Software* *The Shieling* *New Road, Swansea* *Hants SO3 2PE*

Pick of the week

WIDE VOCABULARY

Around a year ago Psion released, under licence, a version of *Scrabble* for the Spectrum that had a vast vocabulary and had us all amazed and impressed. It's still a vital enough program to be included on the special microdrive deal Sinclair have planned for Christmas.

Now the people who issued the licence, Leisure Genius, have issued the Commodore 64 version of the game. It forms part of a planned range of games based on originals designed by Spears and Waddingtons.

The Commodore version of *Scrabble* adopts the same standards as the Spectrum one. The Scrabble board on screen is comparatively small — just big enough for you to read the letters. Up to four can play, one of whom can be the computer. The computer is equipped with 11,000 words which is enough to ensure a reasonable game.

How long the computer spends hunting through its database of words is determined by a skill level set at the beginning of the game. The highest level can take a very long time indeed. As in the Spectrum game, you can see the computer trying out words and checking scores on the screen while you're waiting for it to come to a conclusion.

People always complain if one reviews things by comparing them with something on another machine, so let's just say that *Scrabble* on the Commodore 64 plays a mean game and that any microcomputer can play *Scrabble* is a remarkable thing in itself. As such it's highly recommended to any Commodore owner. But I can't help thinking it a bit odd that it knows no more words and responds more slowly than the Spectrum (48K instead of 64) version.

Program	*Scrabble*
Price	*£12.95*
Micro	*Commodore 64*
Supplier	*Leisure Genius* *3 Montagu Row* *London W1H 1AB*

SIX-PACK

Hardly a new release — but a new concept perhaps. Beau Jolly has bought up the rights to most of the Imagine catalogue and are issuing the games, along with a couple of Ia-verwire as packs of four and six.

There's little point in reviewing the games (apart from one unseen one called *B C Bill* which is also available separately and can be reviewed as such) but given that the Commodore 64 pack, for example, consists of *Arcadia* (very good) *Pedro* (not so good) *Cosmic Cruiser* (very good) *B.C Bill* (reviewed sepa-

rately), *Invaders (very good)* and *3D Jumpin Jack (best Frogger)* — it's obvious you're not getting dross.

Therefore the main consideration is the price — it's £14 99 for the six packs and £9 99 for four. That's around £2.50 a game — most of them previously £5.99 or so. So the packs are an excellent idea for those who've just bought their computer and want a range of games to start off with or aunties who want something to buy as a Christmas present, but are not sure what to choose.

Program *Commodore 64 Pack*
Price *£14 99*
Micro *Commodore 64*
Supplier *Beau Jolly*
19a New Broadway
Ealing
London W5 5AW

BODILY PARTS

Frank N Stein is fun. In fact, although there's really nothing technically astounding about it and neither could it really be said to be original in any way, somehow it does something right and I found myself having many more just-one-more-goes than I have had for ages. Since *Jet Set Willy* in fact

It's a collect and doge game — you collect the bits of Frank N Stein's body, dodge various completely irrelevant and odd objects and wander back and forth. There are various platforms on various levels and you must use a series of springs to bounce from one to another Frank N Stein's monster's parts have to be collected in the right order and eventually returned to the lab at the top of the screen.

Each screen is different and requires a new strategy: things bounce, wobble and bash you in unexpected ways and figuring out how to collect all the different bodily parts without getting bashed becomes a matter of some judgement and skill. In the top five within two weeks of release, I'd say

Program *Frank N Stein*
Price *£5 95*
Micro *Spectrum*
Supplier *PSS*
452 Stoney Stanton Rd
Coventry
CV6 5DG

UNPARTISAN

Ocean have produced the first reasonable *Track and Field* clone I've seen. It can come as no surprise to discover that it's for the Commodore 64

Entitled *Daley Thompson's Decathlon* it is apparently endorsed by your favourite world's greatest athlete and mine, as well as being well good I suppose. It couldn't be said to require the same skills as the real thing, though.

The game also has an extensive soundtrack, which is partly Yellow Magic Orchestra (hope you're paying royalties, lads) and partly a specially composed Olympic anthem-type thing which is actually pretty good.

Like *Track and Field* you race, throw and jump by a mixture of frantic joystick toggling and the fire button — the former to get up speed, the latter to determine the angle of jump (or throw) You can compete against the computer and another player — if you beat the current record the crowd erupts with entirely unpartisan cheers. (Here the program diverges from real life.)

It's not *Track and Field*, of course — the graphics aren't quite up to it. But it's close and there is a little man who comes out to measure your jump with a tape when appropriate.

Program *Daley Thompson's Decathlon*
Price *£7.90*
Micro *Commodore 64*
Supplier *Ocean*
6 Central Street
Manchester M2 5NS

XMAS

Every now and then we get something new for the Texas TI99/4A, the temptation to ignore it is strong, though, since unless they come from Texas themselves they are certain to be in Basic and not good compared with the offerings of other micros. This, I hasten to add, is totally Texas's fault for not making the technical details of the machine more accessible

Sloopy's Christmas is based on a well-known cartoon character to which Sceptre Software almost certainly don't have the rights The game has three screens to get from one to the other you need a password. The first screen has you helping Sloopy's friend to drop in (literally) on his Christmas celebrations, then he has to shoot a turkey and finally drive home safely

One nice idea is *Musiload*; as the program loads on one tape channel, the other is used to play music — probably like waiting for a plane to take off.

Program *Sloopy's Christmas*
Price *£6*
Micro *Texas TI99/4A*
Supplier *Gamesware*
94 Wycliffe Avenue
Newcastle upon Tyne
NE3 4RA

BIG DADDY

Quiz programs seem to be what's happening, man, in the wonderful world of computer software — dozens have been released over the past few months giving hours of fun to all the family (apparently — my family hates them)

What looks like being the big daddy of them all is *Junior Quiz* on the BBC and the Electron. This tape has a machine-code program that formats and organises the questions and 15 files of questions on various subjects from nature spelling

Aside from the vast number of question available, what also makes this one of the best of its kind is a sensible menu system that lets you choose the style of question you want — multiple choice, yes or no — and add your own questions to the files

The program's nicely packaged with a clear explanation of what does what and the range of questions should mean it takes quite a while to exhaust.

Program *Junior Quiz*
Price *£10 95*
Micro *BBC/Electron*
Supplier *Kosmos Software*
1 Pilgrims Close
Harlington
Dunstable
Bedfordshire
LU5 6LX

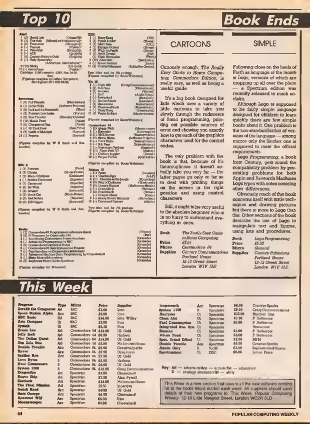
HIGHLIGHTS

Although nothing seems to be able to move *Football Manager* from its position as 'the best football manager game' people still venture into the genre — probably because a lot of programmers also like football.

The Double is for the Commodore 64 and has the immediate virtue of being £2.99 It's far more a management game than *Football Manager* — it doesn't for example, have match highlights graphically displayed. On the other hand there are a large number of options available to you, from changing the formation of the team to spying on your rivals.

It isn't all buying and selling players either, as manager you have to consider things like gas bills, wages and other mundane details Can you fight your way to the first division without going broke? For a mere £2.99 you can find out

Program *The Double*
Price *£2.99*
Micro *Commodore 64*
Supplier *Senator Software*
62 Graham Ave
Broxbourne
Herts



Top 10

Atari
1 (2) Bruce Lee (Datasoft)
2 (1) The Hulk (Adventure International)
3 (5) Encounter (Novagen)
4 (–) Popeye (Parker)
5 (–) Planetfall (Infocom)
6 (–) ACE (English)
7 (8) Captain Sticky's Gold (English)
8 (–) Rally Speedway (Adventure International)
9 (10) Slinky (US Gold)
10 (–) Astrochase (Parker)
Cartridge 16K cassette 32K disc, 48K disc.
(Figures compiled by Calisto Computers, Birmingham 021-632 6458)

Spectrum
1 (3) Full Throttle (Micromega)
2 (1) Jet Set Willy (Software Projects)
3 (2) Jack and the Beanstalk (Thor)
4 (3) Tornado Low Level (Vortex)
5 (6) Blue Thunder (Foundry Systems)
6 (10) Match Point (Psion)
7 (5) Chequered Flag (Psion)
8 (–) 3D Tank Duel (Real Time)
9 (7) Lords of Midnight (Beyond)
10 (–) Psytron (Beyond)
(Figures compiled by W H Smith and Son, London)

BBC B
1 (3) Fortress (Pace)
2 (6) Chess (Micro Power)
3 (2) Micro Olympics (Database)
4 (–) Spitfire Command (Superior)
5 (1) [illegible] (Superior)
6 (6) Mr Wiz (Superior)
7 (4) Aviator (Acornsoft)
8 (7) Stock Car (Micro Power)
9 (7) Ded Before (Superior)
10 (9) JCB Digger (Acornsoft)
(Figures compiled by W H Smith and Son, London)

ZX81
1 (–) Krazy Kong (PSS)
2 (3) Pinball Raider (Novus)
3 (4) Alien Base (CRL)
4 (1) Krypton Ordeal (Novus)
5 (3) Walk the Plank (Novus)
6 (8) Zenith Crystal (PSS)
(7) Flight Simulation (Psion)
8 (10) Asteroids (Quicksilva)
9 (–) Space Raiders (Psion)
10 (4) Football Manager (Addictive Games)
Two titles tied for 6th position
(Figures compiled by Boots/Websters)

Vic 20
1 (–) Flight 015 (Craig Communications)
2 (2) Sub Hunt (Mastertronic)
3 (1) Bomber (Virgin)
4 (–) Cat (Audio Genic)
5 (–) Bewitched (Boss Jolly)
6 (–) Andes Attack (Llamasoft)
7 (4) Undermine (Mastertronic)
8 (2) Phantom Attack (Mastertronic)
9 (–) Crazy Kong (Interceptor)
10 (8) Vegas Jackpot (Mastertronic)
(Figures compiled by Boots/Websters)

Commodore 64
1 (2) Space Walk (Mastertronic)
2 (–) [illegible] (Interceptor)
3 (7) BMX Racers (Mastertronic)
4 (5) Manic Miner (Software Projects)
5 (–) Duck Shoot (Mastertronic)
6 (–) Sub Hunt (Mastertronic)
7 (–) Hareraiser Prelude (Haresoft)
8 (10) Flight Path 737 (Anirog)
9 (–) Chinese Juggler (Ocean)
10 (–) Purple Turtles (Quicksilva)
(Figures compiled by Boots/Websters)

Dragon 32
1 (1) Pedro (Imagine)
2 (–) Chuckie Egg (A & F)
3 (10) Cuthbert in the Jungle (Microdeal)
4 (9) Ring of Darkness (Wintersoft)
5 (3) Hungry Horace (Melbourne House)
6 (–) Dragonfly 3 (Hewson)
7 (8) Hunchback (Ocean)
(–) Dragon Chess (Oasis)
9 (–) Space Shuttle Simulator (Microdeal)
10 (–) Command Factory (Mikro)
Two titles tied for 7th position.
(Figures compiled by Boots/Websters)

Books
1 (1) Commodore 64 Programmers reference Guide (Pitman)
2 (4) 60 Programs for Commodore 64 (Pan)
3 (–) Introducing Commodore 64 machine code (Granada)
4 (–) Advanced Programming for BBC (Granada)
5 (8) Commodore Graphics & Sound (Granada)
6 (–) Commodore 64 Disk Systems and Printers (Granada)
7 (–) Data Handling on Commodore Made Easy (Granada)
8 (–) Advanced Machine Code Programming for Commodore 64 (Granada)
9 (–) Make Most of Microdrive (Granada)
10 (8) Beginners Micro Guide-Spectrum (Granada)
(Figures compiled by W London)

Book Ends

CARTOONS

Curiously enough, *The Really Easy Guide to Home Computing, Commodore Edition*, is really easy, as well as being a useful guide.

It's a big book designed for kids which uses a variety of little cartoons to take you slowly through the rudiments of Basic programming, pointing out possible sources of error and showing you exactly how to get each of the graphics characters used for the control codes.

The only problem with the book is that, because of it's thouroughness, it doesn't actually take you very far — the latter pages go only so far as to deal with printing things on the screen in the right position and using control characters.

Still, it ought to be very useful to the absolute beginner who is in no hurry to understand everything at once.

Book *The Really Easy Guide to Home Computing*
Price *£7.64*
Micro *Commodore 64*
Supplier *Century Communications, Portland House, 12-13 Greek Street, London W1V 5LE*

SIMPLE

Following close on the heels of Forth as language of the month is Logo, versions of which are cropping up all over the place — a Spectrum edition was recently released to much acclaim.

Although Logo is supposed to be fairly simple language designed for children to learn quickly there are few simple books about it. One problem is the non-standardisation of versions of the language — among micros only the Sinclair one is supposed to meet the official requirements.

Logo Programming, a book from Century, gets round the compatibility problem by presenting problems for both Apple and Research Machines Logo types with notes covering other differences.

Obviously much of this book concerns itself with turtle techniques and drawing pictures but there is more to Logo than this. Other sections of the book describe the use of Logo to manipulate text and figures, using lists and procedures.

Book *Logo Programming*
Price *£6.95*
Micro *General*
Supplier *Century Publishing, Portland House, 12-13 Greek Street, London W1V 5LE*

This Week

Program	Type	Micro	Price	Supplier
Zoraldt the Conqueror	Ad	BBC	£3.00	Icon
Space Station Alpha	Arc	BBC	£7.95	Icon
BBC Basic	Ed	BBC	£14.95	John Wiley
Arts Designer	Ut	BBC	£7.95	Pica
Synth	Ut	BBC	£6.75	Pica
Bruce Lee	Ad	Commodore 64	£14.95	US Gold
Jolly Jack	Ad	Commodore 64	£6.95	Harbour
The Dallas Quest	Ad	Commodore 64	£14.95	US Gold
Sim Sala Bim	Ad	Commodore 64	£8.95	Melbourne House
Double Trouble	Arc	Commodore 64	£6.95	Creative Sparks
Havoc	Arc	Commodore 64	£9.95	Dynavision
Spitfire Ace	Arc	Commodore 64	£9.95	US Gold
Love Bytes	S	Commodore 64	£6.95	Harbour
Naval Commander	S	Commodore 64	£9.95	US Gold
System 1000	S	Commodore 64	£12.95	Craig Communications
Dragonfire	Ad	Spectrum	£7.95	Cheetahsoft
Rogue Ship	Ad	Spectrum	£7.95	Alan Pywell
Sherlock	Ad	Spectrum	£14.95	Melbourne House
The Final Mission	Ad	Spectrum	£5.50	Incentive
Beach Head	Arc	Spectrum	£6.95	US Gold
Gusts George	Arc	Spectrum	£6.95	Cheetahsoft
Krooked Wilf	Arc	Spectrum	£6.50	Kiko
Moonsweeper	Arc	Spectrum	£7.95	Cheetahsoft
Imagesearch	Arc	Spectrum	£6.95	Creative Sparks
System 1000	S	Spectrum	£9.95	Craig Communications
Analyser	Ut	Spectrum	£38.00	Number One
Class List	Ut	Spectrum	£3.95	P Nethercot
Fuel Consumption	Ut	Spectrum	£5.00	P Nethercot
Integrated Bus. Sys.	Ut	Spectrum		Hestacrest
Russian	Ut	Spectrum	£1.00	P Nethercot
Bureau Fund	Ut	Spectrum	£3.00	P Nethercot
Spec. Sound Effect	Ut	Spectrum	£7.95	MPM
Double Trouble	Arc	Spectrum	£6.95	Creative Sparks
Adults Only	S	Vic 20	£3.50	Sophisticated Games
Spectrumizer	Ut	ZX81	£6.95	James Paton

Key: Ad — adventure/Arc — arcade/Ed — education/ S — strategy simulation/Ut — utility

This Week is a new section that covers all the new software coming on to the home micro market each week. All suppliers should send details of their new programs to This Week, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2R 3LD

The right question

It is traditional to think of technological development as something which responds to a need.

Society needs a means of communicating quickly over great distance and the postal system is born. The horses used by the post office get tired, the carriages are slow and so new carriages are developed which are light and fast, yet reliable, but still not fast enough. The postal industry is quick to adopt the new technologies of transportation, cars, motorcycles, aircraft, and so on, but society demands more.

Alexander Bell, Guglielmo Marconi, and a great number of other inspired workers were busy creating answers to this particular problem. Now we are all communicating like mad with our telephones, radios, televisions, and modems.

Have the temerity to mention that you would like to watch the Olympic games live from half-way around the world and someone is only too pleased to stuff up a couple of satellites in geo-stationary orbit to help you out.

This is the traditional view of technological development and, very often, is completely wrong.

It is nonsense to suggest that Orville and Wilbur Wright had any great desire to solve the problem of meeting the world demand for cheap package holidays abroad. They had a huge desire to fly and that was about it. The technologies which they pioneered and the answers they provided were picked up and used to meet a number of diverse needs, to solve a range of problems.

It strikes me that very often the major developments of society follow behind the provision of answers by technologies.

If you are already the owner/user of a home computer then you will probably know exactly what I mean. Did you have a need for the computer before you got your hands on it? Did the computer answer that need? Most people would say no to either one or both of these questions.

We have not yet really started to ask the proper questions of the home computer, but very few people have yet described the thing as a failure. In fact it is my opinion that the home computer is a damn good answer still searching out the right questions.

Some of those questions are beginning to make themselves known now. What do we do for home entertainment when we get fed up with the limitations of the television? What do we do when we want special education at our own pace and convenience? How can we get better control of our home, its various gadgets, the heating systems, the communications systems? What happens when we want expert advice but can't get the attention of (or can't afford or can't understand) the expert?

You can guess what I think the answer is. Can you guess what all the other questions are going to be?

If you can, then you are one of a select band. Not enough people at the moment seem to be devoting themselves to thinking up uses for the micros.

And I must confess I don't know why not. It seems that nobody wants to know because they are all too busy playing games.

What will happen when people begin to get bored with games? **John Cochrane**

Haywire digits

Puzzle No. 122

When James dropped his calculator, the display went haywire. Although it still calculates accurately the digits that are displayed are shown in a rather curious fashion. For example here is the result of three multiplications

Unfortunately the arrangement of the segments of each digit displayed gives no clue as to the original digit. That is any segment that is displayed does not necessarily indicate that that particular segment is displayed in the digit — and vice versa.

However, there is one consolation in that the faults are constant and any symbol displayed always represents the same digit whenever it occurs. Also the zero is unaffected and shows as normal.

Can you decipher the displays shown?

Solution to Puzzle No 117

This problem can be worked out in much the same way as it would be done longhand, with pencil and paper. In fact, the reciprocal of 97 is a recurring decimal which repeats every 96 digits, so it would be quite easy to find the millionth decimal place, or any other value above 96, without actually counting them. One solution is: **10** D = 10 **20** N = 97 **30** PRINT "0."; **40** IF N > D THEN GOTO 300 **50** Z = INT (D/N) **60** PRINT Z; **70** D = (D - (Z * N))*10 **80** GOTO 40 **300** D = D * 10 **310** PRINT "0"; **320** GOTO 40

Thus the 31st digit is easily counted off and found to be a 1.

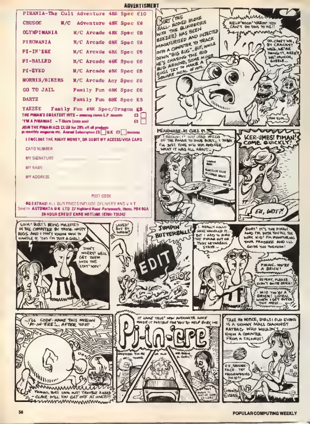
Winner of Puzzle no 117

The winner is Colin Tame, Estcots Drive, East Grinstead, West Sussex, who receives £10.

Rules

The closing date for Puzzle No 122 is September 15.

The Hackers


PIMANIA-The Cult Adventure 48K Spec £10
CRUSOE M/C Adventure 48K Spec £6
OLYMPIMANIA M/C Arcade 48K Spec £6
PIROMANIA M/C Arcade 48K Spec £6
PI-IN'EGE M/C Arcade 48K Spec £6
PI-BALLED M/C Arcade 48K Spec £6
PI-EYED M/C Arcade 48K Spec £6
MORRIS/BIKERS M/C Arcade Any Spec £6
GO TO JAIL Family Fun 48K Spec £6
DARTZ Family Fun 48K Spec £5
YAKZEE Family Fun 48K Spec/Dragon £5
THE PIMAN'S GREATEST HITS – amazing stereo LP cassette £3
"I'M A PIMANIAC – T-Shirts (state size) £5
JOIN THE PIMANIACS CLUB for 20% off all products
bi-monthly magazine etc. Annual Subscription £5 U.K £7 overseas
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CARD NUMBER
MY SIGNATURE
MY NAME
MY ADDRESS
POST CODE
NO EXTRAS! ALL OUR PRICES INCLUDE DELIVERY AND V A T
Send to AUTOMATA U.K LTD 27 Highland Road Portsmouth, Hants. PO4 9DA
24-HOUR CREDIT CARD HOTLINE (0705) 735242
BURT (THE BALL-BODIED BLOKE WITH THE BLUNDERBUS BEEZER) HAS BEEN MINIATURIZED AND INJECTED INTO A COMPUTER TO TRACK DOWN "BIG BUG"... BUT, WHILE HE'S CHASING THE BIG BUG AROUND, SOME MINOR BUGS TRY TO MAKE A SQUARE MEAL OF HIM.
HELP! OOCH! YAROO! YOU CAN'T DO THIS TO ME!!
OH, CAN'T WE, BY CRACKY? WELL, WE'RE DOING IT, AREN'T WE? MUNCH, GOBBLE...
YUM YUM...
MEANWHILE, AT CHEZ PI...
I RECKON IT WAS JOLLY MIZZO OF THE PIMAN TO SNUB BURT... I THINK I'LL JUST TUNE INTO HIM AND SEE WHAT IT WAS ALL ABOUT...
KER-UMBS! PIMAN! COME QUICKLY!
EH, WOT?!
LOOK! BURT'S BEING MOLESTED IN THE COMPUTER BY THOSE NASTY BUGS AND I DON'T KNOW HOW TO HANDLE IT 'COS I'M JUST A GIRL!
DON'T WORRY! WE'LL GET THEM WITH THE 'EDIT' KEY!
SAVED! BUT BY WHOM?
JUMPIN' BUTTERBALLS!
EDIT
THOK
I REALLY COULD HAVE HANDLED IT BUT I HAD TO SNAP THE PIMAN OUT OF THAT LETHARGIC STATE...
BURT! IT'S THE PIMAN AND I'M WITH YOU ALL THE WAY KID! I'M MONITORING YOUR PROGRESS AND I'LL GUIDE YOU THROUGH!
PIMAN... YOU'RE A BRICK!
REPEAT, PLEASE DIDN'T QUITE CATCH!
I SAID YOU'RE A BRICK! LISTEN, WHEN I GET OUTTA THIS MESS
...I'LL CODE-NAME THIS MISSION 'PI-IN-'ERE'... AFTER YOU!!
THANKS, BURT LOOK OUT! TROUBLE AHEAD – CLAIR, WILL YOU GET OFF AT ONCE!!!
IT CAME TRUE! NOW AUTOMATA HAVE MADE IT POSSIBLE FOR YOU TO HELP BURT, INC
Pi-in-'ere
OR EVEN A GIRL!!
TAKE NO NOTICE, GIRLS! OLD EVANS IS A SKINNY MALE CHAUVINIST RATBAG WHO WOULDN'T KNOW A COMPUTER FROM A COCONUT!
O.K, SAUSAGE-FACE TRY PROGRAMMING THIS!!
Graham Evans